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GRAZING ENVIRONMENTAL IMPACT STATEMENT

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SUN VALLEY GRAZING

ENVIRONMENTAL IMPACT STATEMENT

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Butte, Blaine, Camas, and Elmore Counties
State of Idaho

Prepared by
Department of Interior
Bureau of Land Management
Shoshone District

State Director, Idaho

The Bureau of Land Management proposes to modify livestock grazing management on approximately 245,000 acres of public lands in the Sun Valley Planning Area, Shoshone District, Idaho. The proposal would adjust allocation of forage to livestock grazing, wildlife habitat, and other purposes; change grazing systems and seasons of use on some allotments; and provide for additional grazing management facilities and land treatments. Four alternatives (No Change, No Grazing, Lower Stocking, and Greater Production) are analyzed along with the proposed action. The affected environment is described, and the environmental consequences are documented in detail and summarized in comparative form.

For further information contact Terry Costello, Team Leader
Bureau of Land Management, P. O. Box 2 B, Shoshone, Idaho 83352
Telephone (208) 886-2208

Comments should be submitted to the above address by April 30, 1981.

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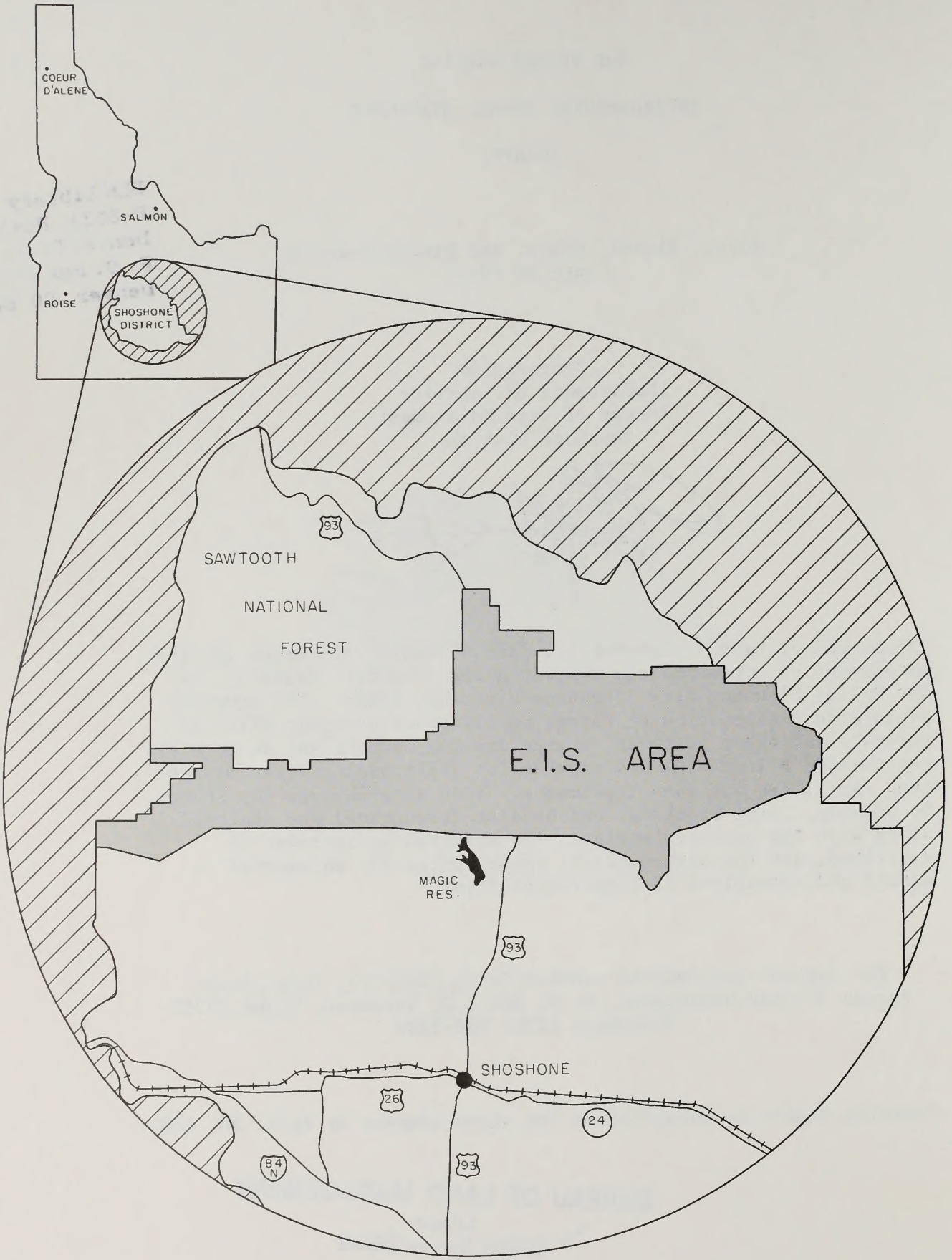
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SUMMARY

The Sun Valley Grazing Environmental Impact Statement (EIS) analyzes the effects of proposed and alternative livestock grazing management on approximately 245,000 acres of public land administered by the Bureau of Land Managment (BLM), Shoshone District, in Idaho. This document will be used to determine future grazing management, based on the principles of multiple use and sustained yield.

Areas of Controversy

Prior to preparation of the EIS, a "scoping" process was conducted to identify significant issues. Based on contacts with Federal, State, and local agencies; organizations; and individuals, the following list of issues was developed:

1. Allocation of available forage between livestock and wildlife;

2. Livestock reductions on some allotments (particularly cattle allotments) and the economic consequences of the range management alternatives;

3. Effects of livestock grazing on soil, watershed, vegetation, wildlife, recreation, cultural, visual, and wilderness resources;

4. Impacts of public land grazing on intermingled State and private lands; and

5. The effects of cattle grazing versus sheep grazing and the continuing trend of converting sheep use to cattle use.

During preparation of the EIS, concerns surfaced regarding cost effectiveness of the proposed range improvements and opportunities for improving riparian areas presently in poor condition. These issues were given additional consideration, and the results incorporated into the EIS. The overall issue of providing for an equitable balance between livestock grazing and other uses on the public land, while minimizing governmental influences on traditional activities, is expected to be a continuing area of controversy.

Proposed Action

Depending on existing range conditions, it is proposed to either continue or modify present livestock grazing management on the 97 grazing allotments in the Sun Valley Planning Area. The proposed stocking rate (29,877 AUMs) would be a 30 percent increase from present average use.

The proposed action is based on multiple-use recommendations that were developed in the land-use planning process. These recommendations provide for maintaining and improving the vegetation, soils, and water resources by (1) adjusting livestock grazing levels to the inventoried carrying capacity of the range, (2) changing grazing systems and/or seasons of use where deemed necessary, and (3) constructing additional grazing management facilities and conducting land treatments on selected areas.

Alternative 1 - No Change

Current livestock grazing programs would be continued. Grazing systems on existing allotments would remain unchanged. Actual grazing use would continue at approximately 23,067 AUMs, which is the average annual licensed use for the past five years. No specific forage allocation would be made for wildlife, although current amounts would continue to be available.

Alternative 2 - No Grazing

This alternative would eliminate all livestock grazing on public lands in the Sun Valley Planning Area. Use on intermingled State and private lands could continue if they were fenced away from public lands. Forage on public lands would be reserved for wildlife habitat and other purposes. No livestock management facilities would be constructed. Facilities for wildlife and watershed would continue under current programs.

Alternative 3 - Lower Stocking

A stocking rate of 18,228 AUMs (approximately 40 percent less than in the proposed action) would be established, based on protection of identified erosive soils and reservation of additional vegetation for uses other than livestock grazing.

Alternative 4 - Greater Production

The stocking rate would be 41,261 AUMs, which is approximately 40 percent more than in the proposed action. More land treatments would be implemented than in the proposed action, based on existing forage demand, range condition, and production potentials. When consistent with BLM regulations and policy, stocking rates and management systems preferred by the permittees would be adopted.

Other Alternatives

The possibility of dropping one or more of the above alternatives was considered; however, they were retained so that the EIS would adequately analyze a full range of management options. Several other alternatives and variations were also considered. However, they were found to be substantially similar to those selected and, therefore, did not warrant separate analysis in the EIS.

Long-Term Environmental Consequences

Soils

The proposed action and the No Change alternative would not significantly change present erosion rates. Soil erosion would decrease 24 percent in the No Grazing alternative, decrease 6 percent in the Lower Stocking alternative, and increase approximately 9 percent in the Greater Production alternative.

Water Resources

Overall watershed conditions would be improved by the proposed action, improved more by Lower Stocking, and improved most by No Grazing. Greater Production would be detrimental, and No Change would cause no significant impacts.

Vegetation

The proposed action would cause a significant net improvement in vegetation condition and an 8 percent increase in usable forage. The No Change alternative would not significantly change either condition or production. Condition would improve as a result of No Grazing and Lower Stocking, and production would increase 18 and 8.6 percent, respectively. The Greater Production alternative would result in more than 70 percent of the public land being "treated" (having brush control or seeding) and would increase usable production by 19 percent.

Wildlife

The proposed action would provide adequate forage for projected big game populations and would substantially improve upland game habitat, aquatic and riparian areas, and habitat for sensitive species and other wildlife. No Change would maintain existing conditions; No Grazing would be very beneficial to almost all wildlife; Lower Stocking would benefit wildlife somewhat more than the proposed action; and Greater Production would reduce the quality and quantity of habitat for almost all wildlife.

Cultural Resources

Slightly adverse impacts would be caused by the proposed action; however, increased cultural resource data would also be generated. The No Change alternative would allow the present slightly downward trend to continue; No Grazing would eliminate livestock trampling and help stabilize cultural resource sites; Lower Stocking would decrease the effects of livestock trampling; and Greater Production could cause severe impacts in livestock concentration areas.

Recreation

The proposed action and Lower Stocking would contribute to substantial increases in hunting and fishing. No Grazing would provide for even greater increases, and No Change would allow present trends to continue. Greater Production would cause a net decrease in hunting and fishing. The net effect of the proposed action and all alternatives of off-road vehicle use would be insignificant.

Visual Resources

The proposed action could cause approximately 1 percent of the public lands in the Sun Valley Planning Area to change to a lower visual resource class. The Greater Production alternative could cause a decline in approximately 7 percent of the lands. The other alternatives would cause no significant change.

Wilderness

Neither the proposed action nor any of the alternatives would significantly effect wilderness. No Grazing could cause slight benefits, and Greater Production could indirectly cause minor adverse impacts.

Livestock Grazing

Based on 20-year projections, the proposed action would allow stocking rates to increase approximately 40 percent from the present average actual use. Stocking rates would remain the same under No Change, and livestock would be removed under No Grazing. A net decrease in stocking of 15 percent would result from Lower Stocking, and a 98 percent increase would occur under Greater Production.

Economics

The proposed action would increase livestock income by $126 thousand, and its net present worth would be $1.1 million. No economic impacts would be caused by No Change. No Grazing, Lower Stocking, and Greater Production would cause changes in livestock income of -$241 thousand, -$51 thousand, and +$307 thousand, respectively, and their net present worth would be -$2.2 million, -$285 thousand, and +$2.2 million, respectively.

Conclusions

The No Grazing and Lower Stocking alternatives would provide major benefits to most natural resources; however, they would cause considerable economic impacts and disrupt traditional grazing operations on public land. The No Change alternative would provide for resource improvement in some allotments but would allow deterioration in others. The Greater Production alternative would provide major economic benefits to the permittees and the local communities but would cause serious adverse impacts to many of the resources. The proposed action allows for overall increases in livestock grazing and provides substantial economic benefits. It also complies with Federal regulations, is consistent with local plans and policies, and provides for protection and/or improvement of other resources. It represents a reasonable balance of resource utilization and has been selected as the "preferred alternative" in the Sun Valley Grazing EIS.

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CHAPTER 1

Purpose and Need

CHAPTER 1

PURPOSE AND NEED

The purpose of the proposed grazing management program is to maintain or improve the soil, vegetation, and water resources while increasing livestock forage and wildlife habitat on approximately 245,000 acres of public lands in the Sun Valley Planning Area (SVPA). These lands are located in the Shoshone District and are administered by the Bureau of Land Management. The proposed action and alternatives provide options for future allocation of vegetation, seasons of livestock use, grazing systems, grazing management facilities, and land treatments on the grazing allotments. The general objectives of the proposal are:

1. To increase livestock forage production;

2. To maintain or improve wildlife habitat;

3. To establish and/or maintain a diverse vegetation composition of grasses, forbs, and shrubs;

4. To protect and provide for the needs of threatened, endangered, or sensitive plants and animals; and

5. To maintain or improve the visual quality of the landscapes.

This environmental impact statement (EIS) analyzes the existing and proposed grazing management and alternatives on a site-specific basis. The proposed action is based on tentative multiple use recommendations in the land use plan for the SVPA. During the land use planning and scoping processes preceding preparation of this EIS, the issues identified for detailed analysis were:

1. Allocation of available forage between livestock and wildlife;

2. Livestock reductions on some allotments (particularly cattle allotments) and the economic consequences of the range management alternatives;

3. Effects of livestock grazing on soil, watershed, vegetation, wildlife, recreation, cultural, visual, and wilderness resources;

4. Impacts of public land grazing on intermingled State and private lands; and

5. The effects of cattle grazing versus sheep grazing and the continuing trend of converting sheep use to cattle use.

Upon completion of this EIS, its findings and all related public suggestions and comments will be considered and incorporated into the land management decisions.

This EIS is prepared in compliance with the National Environmental Policy Act of 1969 and the Council on Environmental Quality Regulations of November 29, 1978. It specifically responds to the U.S. District Court judgment, in case No. 1983-73, Natural Resources Defense Council, Inc., et al., vs. Rogers C. B. Morton, et al.

CHAPTER 2

2

Proposed Action and Alternatives

CHAPTER 2

PROPOSED ACTION AND ALTERNATIVES

This chapter describes the proposed action and four alternatives developed by the Bureau of Land Management (BLM) for managing livestock grazing on public lands in the Sun Valley Planning Area (SVPA). The SVPA includes 97 grazing allotments encompassing 240,033 acres of public land, 45,255 acres of State land, and 165,507 acres of private land. A complete listing of allotments and their acreage by ownership status is presented in Appendix 1 (Table A1-1). The land ownership status is shown on Map 2-1, and allotment boundaries are shown on Map 2-2, both of which are included at the end of this chapter.

The kind of livestock, the stocking rate, season(s) of use, and grazing system for each allotment under the proposed action and alternatives are presented in Appendix 1 (Table A1-2). The range improvements proposed for each allotment are listed in Table A1-3 and summarized in Table A1-4. The method of forage allocation, including suitability determination, used in developing the proposed action and alternatives is described in Appendix 2. A summary of the proposed vegetation allocation, grazing systems, seasons of use, and range improvements for the proposed action and alternatives are presented in Table 2-1.

The following sections of this chapter briefly describe the proposed action and alternatives, the proposed range improvements and guidelines for their implementation, the management implementation procedures, the interrelationships with other government programs, and a summary of the environmental consequences of each option in comparative form. The environmental consequences of the proposed action and alternatives are summarized in Table 2-2. The summaries are based on the more detailed impact assessments presented in Chapter 4.

TABLE 2-1

SUMMARY OF THE PROPOSED ACTION AND ALTERNATIVES

Element	Proposed Action	Alternative 1 No Change	Alternative 2 No Grazing	Alternative 3 Lower Stocking	Alternative 4 Greater Production
Vegetation Allocation					
Livestock (AUMs) 1/	29,877	23,067	0	18,288	41,261
Livestock (1000 lbs.)	23,900	18,450	0	14,580	33,010
Big Game (1000 lbs.)	7,062	3,514	7,062	7,062	3,514
Other (1000 lbs.)	166,379	175,377	190,279	175,699	160,817
Grazing Systems (acres)					
Rest Rotation	52,414	26,618	---	52,414	39,609
Deferred Rotation	79,812	29,324	---	74,775	91,997
Deferred	17,998	1,025	---	17,575	17,998
Seasonal	89,570	182,556	---	89,196	90,297
No Grazing 2/	239	510	240,033	6,073	132
Season of Use (acres)					
Livestock Grazing Prior to 5/15	111,096	216,711	---	111,096	111,203
Livestock Grazing After 10/15	147,091	216,648	---	147,091	148,876
Range Improvements					
Reservoirs (number)	31	---	---	26	32
Springs (number)	99	---	---	78	101
Wells (number)	2	---	---	2	2
Pipelines (miles)	2.5	---	---	2.5	2.5
Fences (miles)	22.8	---	---	16.0	23.6
Cattleguards (number)	9	---	---	9	10
Brush Control (acres)	19,390	---	---	---	160,773
Brush Control and Seeding (acres)	4,520	---	---	---	6,576
Seeding (acres)	75	---	---	---	1,027

1/ An AUM is equivalent to 800 pounds of vegetation.
2/ Various areas are unallotted in several alternatives.

The proposed action was designed to:

1. Allow livestock grazing in the SVPA to increase from 23,067 animal unit months (AUMs) to 32,230 AUMs within 20 years. (One AUM of forage will feed one cow or its equivalent for one month.)

2. Provide adequate habitat on public land in the SVPA to support the projected long-term deer population, including reserving 34,628 deer months of forage. (A deer month of forage will feed one deer for one month.)

3. Provide adequate habitat on public lands in the SVPA to support the projected long-term antelope population, including reserving 1,423 antelope months of forage.

4. Provide adequate habitat on public lands in the SVPA to support the projected long-term elk population, including reserving 3,723 elk months of forage.

5. Improve a majority of the areas that are presently in poor ecological condition.

6. Provide for the protection and conservation of sensitive, threatened, and endangered plants and animals.

7. Improve the habitat on public lands in the SVPA of the Wood River sculpin to at least good condition.

8. Improve all riparian habitat to at least fair condition.

9. Provide for the protection of cultural resources.

To achieve the objectives, BLM proposes to (1) adjust livestock stocking rates to the inventoried grazing capacities; (2) implement 34 new grazing systems; (3) change the seasons of use on 74 allotments; (4) construct 31 reservoirs, 99 spring developments, 2 wells, 2.5 miles of pipelines, 22.8 miles of fence, and 9 cattleguards; and (5) implement land treatments on 23,985 acres of public land. The stocking rate was derived by subtracting the projected long-term competitive wildlife needs from the inventoried grazing capacity on suitable public lands. Projected long-term wildlife needs are based on the 1990 big game population projections made by the Idaho Department of Fish and Game in cooperation with BLM. Trend, utilization, and actual use studies were considered along with the inventory to determine the grazing capacity.

In selecting the grazing systems, seasons of use, and range improvements for each allotment, several variables were considered, although no rigid criteria were used. Some of the more important considerations included: (1) the nine objectives identified above, (2) the present condition of the vegetation and soil, (3) the location of existing water sources and fences, and (4) the history of use and livestock-operator needs.

On allotments where the actual use is less than the active preference, and the grazing capacity indicates that an increase in the stocking rate would be allowed, the proposed stocking rate is the same as the active preference. If the permittees express a need for additional forage on these allotments, temporary nonrenewable use in excess of the active preference, and up to the grazing capacity, would be allowed. As allotment grazing capacities increase, additional available forage would be allocated to livestock. Estimated forage available for allocation to livestock by the year 2000 is addressed in Chaper 4.

Along streams on public lands where the Wood River sculpin is known to occur, measures would be taken to improve riparian areas to at least good condition. Measures would also be taken to improve all riparian areas in poor condition to at least fair condition. Where the desired results cannot be achieved through changes in livestock management, fences or other barriers would be built to exclude livestock.

In this EIS, the proposed action represents the "preferred alternative" addressed in section 1502.14(e) of Title 40 of the Code of Federal Regulations.

ALTERNATIVE 1: NO CHANGE

Under this alternative the present level of livestock grazing management would be continued within the SVPA without change. The stocking rates for this alternative would total 23,067 AUMs, the five-year (1974-1979) average actual use. No new grazing systems would be developed and present seasons of use would be maintained. Conversions in kind of livestock would not be permitted (i.e., changes from sheep to cattle or vice versa).

Existing range improvements would be maintained if operable but not restored if presently inoperable. No new range improvements, including land treatments, would be authorized except in emergency cases.

ALTERNATIVE 2: NO GRAZING

Under this alternative all licensed livestock would be removed from the public lands in the SVPA. All forage would be reserved for values other than livestock grazing. Other resources and uses would continue to be managed as mandated by the Federal Land Policy and Management Act of 1976.

Should State and private lands intermingled with public lands be used for livestock grazing, it would be the responsibility of the individual landowners to install fences and cattleguards where appropriate to prevent livestock trespass on public land. No new range improvements would be developed by BLM. Existing range improvements would be maintained if they would benefit other resources.

ALTERNATIVE 3: LOWER STOCKING

The proposed stocking rate for the Lower Stocking alternative was derived by subtracting the forage on public lands with severe erosion hazards from the amount of forage available in the proposed action. The number of acres of public land with severe erosion hazard is shown for each allotment in Table A1-5. Vegetation not consumed by livestock would be available for wildlife and non-consumptive uses. Measures would be taken to improve the riparian habitat along 14.5 miles of stream. No land treatments would be conducted under this alternative. The management facilities proposed under this alternative are listed in Appendix 1, Table A1-3. As allotment grazing capacities increase, the additional available forage would be allocated to livestock.

ALTERNATIVE 4: GREATER PRODUCTION

The stocking rate for this alternative was derived by subtracting the present competitive wildlife forage needs from the expected grazing capacity on suitable public lands after proposed land treatments are completed. Temporary adjustments in stocking rates would be made while land treatments were being implemented. The stocking rates listed in Appendix 1, Table A1-2 would be implemented within five years after completion of this EIS if

land treatments were implemented as scheduled (Table A1-3). The areas where land treatments would be implemented are shown on Map 2-4.

OTHER ALTERNATIVES CONSIDERED

Several additional alternatives and variations of those described above were considered during the development of this EIS. For example, an alternative of improved grazing management and either no or minimal range improvements was considered. However, it was found that for any given allotment this alternative would be basically the same as the proposed action, the No Change alternative, and/or the Lower Stocking alternative. Also, on the whole, this alternative would not add to the range of environmental impacts analyzed. In summary, all other alternatives not presented in this EIS did not differ sufficiently from the ones selected to warrant a detailed written analysis.

DESCRIPTION OF RANGE IMPROVEMENTS

The purpose of implementing range improvements would be to improve the distribution of grazing animals, increase livestock forage, and improve and/or protect wildlife habitat. Maintenance of range improvements would be performed by the permittees under cooperative agreement, or by BLM in accordance with manual guidance. The following descriptions apply to typical range improvements for the proposed action and the two alternatives for which they would be implemented.

Grazing Management Facilities

Spring Developments

Typical spring developments would consist of a collection box at the water source, buried pipe from the collection box to troughs, fencing

around the water source and some or all of the riparian habitat, and an overflow pipe to carry excess water from the troughs down the drainage. Fencing would help prevent livestock from trampling the spring site. Piping overflow away from the troughs would reduce erosion around the troughs. Troughs would be installed so that they could be used by wildlife as well as livestock. Small animal escape ramps would be installed on each trough. Developments would be designed to minimize visual impacts by using inconspicuous locations, nonreflective materials and colors, etc. Areas disturbed during the construction phase would be reseeded with grasses and forbs.

Reservoirs

Some reservoirs would consist of water collection pits varying in size from one-third to one surface acre, and in depth from two to ten feet. Other reservoirs would consist of earth dams across intermittent drainages. Reservoirs would be sealed as necessary. The dam-type reservoirs would be fenced to exclude livestock, and the water would be piped to troughs. Troughs would be installed so that they could also be used by wildlife. Escape ramps for small animals would be installed in each trough. Float valves would be placed in the troughs to regulate water flow from the reservoirs. Troughs would be painted a nonreflective, neutral color. Areas disturbed during construction would be seeded with grasses and forbs.

Wells

Horizontal drilling would be used for the two proposed well sites. The wells would not be expected to require pumps. They would be similar to spring developments and would include fencing and troughs.

Pipelines

The proposed pipelines would be extensions of existing watering systems. Troughs would be installed along each pipeline in the same manner as those described for reservoirs. The areas disturbed by installation would be seeded with grasses and forbs.

Fencing

Fencing is proposed to facilitate the implementation of grazing systems. All proposed fencing would be constructed to BLM specifications. The required designs are intended to control livestock without restricting the movement of big game. Specifications could include requirements for a smooth bottom wire at least sixteen inches above the ground in antelope areas and a maximum top-wire height of 42 inches in deer areas. Special consideration would be given to avoiding side slopes where fencing could not be easily negotiated by deer traveling uphill.

Solid-colored nonreflective steel posts would be used in constructing fences unless a safety problem were created. Wooden posts would be used on corners, gates and stretch panels. Where fences cross existing roads, cattleguards or gates would be installed. Gates would be located at least every half mile and in corners, as needed. Fence lines would be cleared, if necessary, using methods that would minimize disturbance of soil and vegetation.

Cattleguards

Cattleguards would be located where fences cross roads. These would be eight feet across and 12 to 24 feet wide, depending upon the traffic type and pattern. Cattleguards would be placed on existing or new roads.

Land Treatments

Brush Control

Most brush control would be accomplished by prescribed burning. Some control would be accomplished mechanically or chemically. When used, chemical herbicides would be applied by helicopter in the spring, after leaves and shoots have developed, but before leaf cuticle has thickened. Where seedbed preparation is necessary and slopes do not exceed 30 percent, mechanical treatment (chaining, plowing, or discing) would be used. Brush control would be proposed primarily in: (1) areas presently dominated by the mountain sagebrush type in poor condition, and (2) productive areas not having steep slopes.

Brush Control and Seeding

Where seeding is proposed in conjunction with brush control, mechanical means for controlling brush would be used, and forb and grass species would be seeded with a standard rangeland drill.

Seeding

Where seeding alone is proposed, the seed would be drilled without prior preparation of a seedbed. This would generally be done in areas presently dominated by annual grasses and forbs.

Control of Noxious Weeds

Control of noxious weeds would be coordinated with the counties involved. The noxious weeds currently identified on public land in the SVPA are: (1) diffuse knapweed, Centaurea diffusa; (2) Scotch thistle, Onopordum acanthium; and (3) Canadian thistle, Cirsium arvense.

GUIDELINES FOR IMPLEMENTING RANGE IMPROVEMENTS

The following procedures would apply to the implementation of the range improvements for the proposed action and both alternatives for which they have been proposed.

Cost Effectiveness

BLM requirements for completing cost-effectiveness studies will be met before range improvements are implemented.

Cultural Resource Protection

Prior to commencement of any range improvement activities which involve land disturbance, the BLM will conduct a Class III (intensive) inventory, as specified in BLM Manual Section 8111.4, supplementing previous surveys to locate, identify, and evaluate cultural resource properties in the affected area(s).

Cultural resource values discovered in a proposed work area would be protected by adhering to the following methods:

1. Redesigning or relocating the project.

2. Salvaging, through scientific methods, the cultural resource values.

3. Should the site be determined to be of significant value, and/or the above mentioned methods are not considered adequate, the project would be abandoned.

4. If properties that may be eligible for the National Register are discovered, the BLM will consult with the State Historic Preservation Officer (SHPO) and forward the documentation to the Keeper of the National Register to obtain a determination of eligibility in accordance with 36 Code of Federal Regulations, Part 63.

Endangered, Threatened, and Sensitive Species Protection

The Endangered Species Act mandates protection of threatened or endangered plant and animal species; BLM policy requires protection of sensitive species. These species designations are defined in the Glossary and discussed in Chapter 3. Prior to construction of any project the following steps will be taken:

1. A detailed inventory for endangered, threatened, or sensitive species will be undertaken during the planning stages.

2. Should endangered, threatened, or sensitive species be found in the project area, the following options are available:

    a. Locate or design project to protect these species.
    b. Abandon the project.

Wilderness Study Area Protection

Wilderness Study Areas will be managed under the Interim Management Policy "in a manner so as not to impair the suitability of such areas for preservation as wilderness" (Section 603(c) of the Federal Land Policy and Management Act).

Protection of Other Values

A site-specific Environmental Assessment (EA) will be written for each range improvement project, analyzing the potential impacts of the project on all aspects of the environment and identifying means of mitigating those impacts.

Land treatments in crucial winter habitat for deer and elk would be allowed only if it is determined through the EA process that such treatment would enhance wildlife habitat.

Thirty percent sagebrush cover would be left on identified sage grouse nesting areas.

No chemical would be used on public lands unless approved by the Department of Interior.

A visual resource management (VRM) contrast rating and evaluation would be completed for all proposed range improvements to identify mitigating measures necesary to meet VRM class objectives.

No mechanical land treatments would be attempted on slopes over 30 percent.

Buffer zones of approximately 100 yards would be left on all sides of riparian zones in proposed land treatment areas.

No prescribed burning would be undertaken on slopes greater than 35 percent if a severe erosion hazard exists.

Livestock would be restricted from timber reproduction areas until such time as the trees are large enough to survive any damage from grazing.

No land treatment would be undertaken on forested lands.

All land treatment areas would be rested from grazing for at least two growing seasons following treatment.

The following procedures apply to the proposed action, the Lower Stocking alternative, and the Greater Production alternative. Present procedures would continue for the No Change alternative, and no grazing administration would be necessary for the No Grazing alternative.

Grazing Administration

BLM would issue permits in accordance with the grazing regulations (43 CFR 4100) for grazing livestock on each allotment within the framework of the grazing system. The grazing permit specifies the grazing area, number and kind of livestock, and seasons of use. BLM employees would make routine allotment inspections to ensure that livestock numbers and time of grazing for each pasture are in compliance with the permit authorization.

Crossing permits would be required for livestock trailing across public land. BLM would control livestock trespass in accordance with the grazing regulations. Livestock would be eartagged or marked in some other manner if determined by the BLM Area Manager to be necessary for management and trespass control. Land exchanges that would benefit grazing administration would be encouraged on intermingled lands.

Allotment Adjustments

During the land use planning process for the SVPA, suggestions were received from livestock operators to combine some allotments and divide others. As a result, the current West Fork and Kent Canyon allotments, managed for several years as a unit, are analyzed as one allotment (Kent Canyon) in this EIS. It was suggested that the Poverty Flat, Upper Rock Creek, Colorado Gulch, and West Bellevue allotments be combined; however, it was considered beneficial to show the data for each of these allotments separately. Trail Creek and Bennett allotments were likewise suggested for combination but are analyzed separately in this EIS.

It was suggested that Dry Creek Allotment be divided to provide separation of the established use areas. A suggestion was also made that Elkhorn Allotment be divided so that the sheep permittee and the cattle permittee could use separate areas.

Boundary adjustments have been proposed on the Camp Creek and Big Beaver allotments that would recognize the ridge top as the boundary. The adjusted areas have been analyzed in this EIS.

None of the above boundary adjustments have been made officially; however, any of the suggested changes in and of themselves would not cause significant environmental impacts. The allotments analyzed in this EIS were selected for clarity and consistency. Any future adjustment would be analyzed in an environmental assessment.

Implementation Schedule

Adjustments in livestock use would be implemented as provided for in BLM regulations and would be scheduled over a five-year period. Proposed range improvements would be completed within a three-year period, as shown in Appendix 1 (Tables A1-3 and A1-4), subject to future manpower and funding limitations. Management facilities essential for improving management would be given priority if available funding were insufficient to implement all range improvements.

Conversion Between Kinds of Livestock

Requests for conversions in kind of livestock, made after completion of this EIS, would be considered on a case-by-case basis after completing an environmental assessment.

Allocation of Increased Forage

Increases in available forage production would be allocated to livestock. The method for determining the amount of increased production to be allocated to livestock is described in Appendix 2. Increased allocations would be on a temporary, nonrenewable basis unless and until monitoring studies showed that a permanent increase in the stocking rate could be allowed.

Monitoring Programs

Studies and evaluation procedures would be initiated in accordance with BLM Manual, Section 4412, to determine if the MFP and specific allotment objectives were being met. These studies would include compilation of actual use, range trend, range/watershed condition, watershed quality, utilization, weather data, grazing capacity, and wildlife habitat conditions. The study sites would be selected and (where possible) read cooperatively with permittees and other interested agencies. If specific objectives were not being met, adjustments in seasons of use, livestock numbers (including removal) or grazing systems would be made as needed.

Utilization studies would be conducted on use pastures during the grazing season. When utilization reached desired levels, livestock would be moved to the next pasture scheduled for grazing. Livestock would be removed from the allotment if utilization limits were reached in all available pastures prior to the end of the scheduled grazing season.

Utilization studies would be conducted using the key forage plant method (BLM Manual 4410). This method establishes key species and key areas that would be monitored for utilization. Key areas would be selected to represent the majority of the grazing area within an allotment or pasture. Key areas would normally not be selected along stream bottoms or ridge tops, but might include special or sensitive areas such as riparian zones. Key species to be monitored would be selected for each allotment and would include the important species for livestock and wildlife, e.g., bitterbrush, Idaho fescue, and bluebunch wheatgrass.

INTERRELATIONSHIPS

BLM's programs and proposals are closely related to the programs of other agencies and individuals. The following interrelationships exist.

Environmental Protection Agency

The Environmental Protection Agency (EPA) has been given initial responsibility for implementing Section 208 of the Federal Water Pollution Control Act Amendment of 1972. Under this act and Executive Order 12088, BLM is required to control water pollution that originates from large areas

of public land (nonpoint source pollution). EPA is working through area-wide water quality management agencies and local Soil Conservation Service offices to complete plans for controlling water pollution in problem areas. Once the requirements of these plans are finalized, BLM will take the measures necessary to comply with them.

U.S. Fish and Wildlife Service

The Fish and Wildlife Service conducts predator control in the SVPA under joint agreement with BLM and the Idaho Department of Fish and Game. The control consists of aerial shooting and limited trapping of coyotes, mostly during the fall, winter, and early spring. No chemical toxicants are used.

The Fish and Wildlife Service also serves as the consulting agency under the Endangered Species Act of 1973.

Soil Conservation Service

The Soil Conservation Service will be involved with permittees, the Idaho Department of Lands, and BLM in preparing cooperative or integrated "Ranch Plans" for certain allotments that include significant portions of private and State land.

Idaho Department of Fish and Game

The Idaho Department of Fish and Game (IDF&G) has established State goals and objectives for wildlife management on public lands within the SVPA. Because wildlife habitat would be affected by the proposed grazing management (especially the stocking rates), there has been coordination between BLM and IDF&G in developing the proposed action. Specifically, the IDF&G has cooperated with BLM in determining existing big game numbers and projecting 1990 desirable herd sizes for the SVPA. Continuing joint studies are being conducted on big game winter ranges and migration routes as well as sage grouse strutting grounds. The IDF&G would also review all proposals for land treatment.

Idaho Department of Health and Welfare

BLM entered into a cooperative agreement with the Idaho Department of Health and Welfare in September 1979 with the common objective of protecting water and air resources within the State. The agreement provides for information exchange and agency coordination in solving state water and air quality problems.

Idaho Department of Lands

The Idaho Department of Lands (IDL) administers 45,255 acres of land within allotments in the SVPA. These lands are leased by livestock operators for grazing on ten-year terms. Most of the State lands are intermingled with BLM-administered lands, making separate management impractical. The IDL has tentatively agreed to accept the BLM's calculation of AUMs allowable on State lands where the forage inventory results are comparable. In cases where the IDPL inventory results are greater than BLM's, a joint reevaluation will be made in an effort to reconcile differences.

Idaho Department of Parks and Recreation

The Idaho Department of Parks and Recreation has certain responsibilities for evaluating and enhancing recreation opportunities throughout the State. As a part of its program, the Department has published a State Comprehensive Outdoor Recreation Plan (SCORP). This plan relies upon the continued use of lands administered by BLM or other agencies to fulfill many of the recreational needs within the State. These needs were considered in formulating the proposed action.

State Historic Preservation Officer

The Sun Valley EIS objectives and the guidelines for implementation of range improvements have been designed to comply with the Programmatic Memorandum of Agreement between the BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers. A copy of the SVPA Cultural Resources inventory report has been submitted to the State Historic Preservation Officer.

County Planning

Portions of Blaine, Butte, Camas, and Elmore Counties are included in the SVPA. The Federal Land Policy and Management Act of 1976, Title II, Section 202(c) states, "Land Use Plans of the Secretary under this section shall be consistent with State and local plans to the maximum extent he finds consistent with Federal law and the purposes of this act." The county planning commissions were consulted prior to development of this EIS, and the proposed action was designed to be compatible with their concerns.

COMPARATIVE ANALYSIS

This section summarizes the environmental consequences of the proposed action and alternatives in comparative form. It is intended to define the issues and provide a clear basis for choice among the options by the decisionmaker and the public. A more detailed analysis of environmental impacts is presented in Chapter 4.

Consequences of the Proposed Action

Soil erosion would increase slightly in localized areas as a result of land treatments and new concentration areas around water developments. Overall watershed condition would significantly improve on three allotments but might decline slightly in one other.

Initial stocking levels for both livestock and wildlife would be consistent with the inventoried grazing capacity. The proposed grazing systems on 40 allotments, changes in seasons of use on 60 allotments, and proposed range improvements on 81 allotments would benefit the vegetation. An 8 percent increase in usable forage on public lands would be expected in 20 years.

Wildlife habitat would improve over current conditions. Projected long-term big game forage demands would be met. Grazing system changes would significantly improve big game and upland game habitat. Aquatic and riparian habitat would improve, as would the habitat for two sensitive species (Wood River sculpin and mountain quail).

Slight adverse impacts to cultural resources would result from increased livestock concentrations in some areas. Slight beneficial effects would accrue from an increase in base-line data.

Hunting and fishing use would increase approximately 135 percent over current levels. Off-road vehicle use would be obstructed by new fences but could be benefited by land treatments and new access trails. An estimated 3,627 acres would decline from Visual Resource Class II to Class III. Lands under wilderness review would not be significantly affected.

The initial stocking rate for the proposed action would be 29,877 AUMs, and the projected stocking after 20 years would be 32,230 AUMs. The SVPA permittees would initially suffer a combined income loss of $5,000 annually, but would gain $126,000 of annual income and approximately seventeen jobs after ten years. Approximately $427,000 would be spent by BLM on range improvements. Considering other benefits, such as increased recreation and secondary impacts, the net present worth to the regional economy would be $1.1 million.

Consequences of the No Change Alternative

Erosion rates would increase slightly on nineteen overstocked allotments, but the overall average erosion rate would not change significantly. Overall watershed condition would not change significantly. Initial stocking levels based on the five-year average actual use (1975-1979) would be favorable to vegetation. Present adjudicated seasons of use would be unfavorable to vegetation on most allotments. The lack of grazing systems on all but ten allotments would tend to maintain the vegetation in its present condition and trend except in meadow and riparian areas, which would decline slightly. Usable vegetation production on public lands would decrease 1.6 percent in 20 years.

No forage would be specifically reserved for big game, which would be expected to result in insufficient big game forage in 29 allotments. Habitat for upland game and sensitive species would remain in their current condition. Aquatic and riparian habitat would not change significantly.

Damage and displacement to cultural resources due to livestock trampling would continue at approximately the present rates.

Hunting and fishing would increase 25 percent based on statewide trends, but success ratios would be expected to decline. Off-road vehicle use, visual resources, and wilderness values would not be significantly affected.

The initial and long-term stocking rates for this alternative would be the same as the 1975-1979 average actual use (23,067 AUMs). This alternative would have no impacts on income or employment.

Consequences of the No Grazing Alternative

Soil erosion would decrease approximately 24 percent due to increased cover and soil productivity. Sediment yield would be reduced considerably, and streambank conditions would improve on 20 allotments. Overall watershed condition would improve on 24 allotments.

Elimination of livestock grazing would be very favorable to vegetation, particularly on meadows and riparian areas where livestock presently congregate. Total vegetation production would increase approximately 18 percent in the long term.

This alternative would be very favorable for wildlife habitat, particularly the aquatic and riparian areas. The projected long-term big game numbers would probably be exceeded. Virtually all habitat for big game, upland game, and sensitive species would improve.

Damage to cultural resource sites from livestock trampling would cease.

Hunting and fishing would increase approximately 165 percent because of projected increases in game and fish populations. Off-road vehicle use would be benefited by the removal of fences, but would be hindered by increased densities of brush. Visual resource classes would not change. The natural character of lands under wilderness review would improve.

No livestock grazing would occur either in the short or long term. The SVPA permittees would suffer a continuing loss in combined income of $241,000 annually. Recreational income would increase $109,000 annually by 1990. Approximately nineteen jobs would be lost initially, but after ten years would be reduced to twelve jobs. Considering both primary and secondary impacts, the net present worth of this alternative to the regional economy would be -$2.2 million.

Consequences of the Lower Stocking Alternative

Soil erosion would decrease approximately 6 percent due to increased cover and soil productivity. Overall watershed condition would improve on eight allotments.

Lower stocking levels, later turnout dates, and improved grazing systems would have beneficial effects on vegetation throughout the SVPA, except in unprotected meadow and riparian areas. Range condition, trend, cover, and productivity would all exhibit pronounced improvement. An 8.6 percent increase in usable forage production would be expected in 20 years.

Wildlife habitat would benefit slightly more than from the proposed action. Projected long-term big game numbers could possibly be exceeded. Aquatic and riparian habitat, and most other wildlife habitat, would be affected about the same as under the proposed action.

Impacts on cultural resources from livestock trampling would continue, but on a lower level than for the proposed action.

Hunting and fishing would increase approximately 119 percent due to projected increases in game and slight improvement in fisheries. Conditions for off-road vehicle use would be similar to those under the proposed action. Visual resource classes would not change, and lands under wilderness review would not be significantly affected.

The stocking rate for this alternative would be initially 18,228 AUMs, increasing to a projected 19,601 AUMs after 20 years. The SVPA permittees would initially lose $84,000 annually in combined income. After ten years the restoration of a portion of the lost AUMs would reduce the annual income loss to $51,000. Approximately seven jobs would be lost in the short term, and two gained in the long term. BLM would spend approximately $212,000 on new range improvements. Considering projected increases in recreation and secondary impacts, the net present worth of this alternative to the regional economy would be -$285,000.

Consequences of the Greater Production Alternative

Soil erosion would increase approximately 9 percent due to reduced cover and soil productivity. Overall watershed condition would decline on nineteen allotments. Higher grazing intensities would cause increases in sediment yield and drastic deterioration in streambank conditions.

Shrubs would be greatly reduced under this alternative. Stocking levels would be increased as land treatments became established; however, grasses and forbs would be enhanced. Responses from changes in seasons of use, grazing systems, and land treatments would be expected to increase the production of usable forage by approximately 10 percent in 20 years.

Many facets of wildlife habitat would be adversely affected by this alternative. Big game numbers would be expected to drop 50 percent below current levels. Brush control would drastically impair habitat for upland game and sensitive species. Aquatic and riparian habitat would be severely damaged.

Severe impacts would result to cultural resources, especially in the land treatment areas.

Hunting and fishing would decrease approximately 19 percent because of projected decreases in game and a decline in fisheries.

Off-road vehicle use would be impeded by additional fences, but would be enhanced by removal of brush and increased access trails. An estimated 22,826 acres would decline from Visual Resource Classes I and II to Class III. One proposed spring development and as much as 7,035 acres of land treatment could occur within wilderness study areas, but they would be subject to the Interim Management Policy, which requires nonimpairment of wilderness character.

The stocking rate for this alternative after completion of land treatments would be 41,261 AUMs. After 20 years the stocking would be projected to increase to 45,617 AUMs. The SVPA permittees would initially gain $121,000 annually in combined income. After ten years this gain would increase to $307,000. Approximately twelve jobs would be gained in the short term, and 23 in the long term. BLM would spend approximately $1,110,000 on new range improvements. The net present worth of this alternative to the regional economy would be approximately $2.2 million.

Summary

The environmental impacts discussed above are summarized in Table 2-2. For more detailed descriptions of the consequences of the proposed action and alternatives, see Chapter 4.

TABLE 2-2

COMPARATIVE SUMMARY OF PROJECTED LONG-TERM IMPACTS

Resource	Present Situation	Proposed Action	No Change	No Grazing	Lower Stocking	Greater Production
Soils						
Erosion (tons/acre/year)	5.2	5.3	5.2	4.0	4.9	5.7
Water Resources						
Overall Condition 1/	Fair	+	0	+++	++	-
Vegetation						
Condition Class (percent of Public Lands)						
Poor	18.0	10.3	17.0	13.9	13.1	12.9
Fair	66.4	48.0	60.2	41.6	44.1	16.2
Good	15.2	31.5	22.4	44.1	42.4	0.4
Treated	0.4	10.2	0.4	0.4	0.4	70.1
Total Usable Production (1000 lb.)	63,739	68,938	62,695	75,220	69,221	80,162
Wildlife						
Big Game Numbers (Percent Change from 1980)	0	+73	0	+ > 73	+ > 73	-50
Habitat Improving (Percent)						
Big Game	0	+45	0	+100	+47	-44 to -87
Upland Game	0	+55	0	+100	+55	-17 to -90
Aquatic and Riparian	0	+39	0	+100	+39	-100
Sensitive Species 1/	0	+	0	+++	++	---
Cultural Resources	Known sites in fair to good condition. Nineteen sites have been damaged by livestock.	Slight adverse impacts due to livestock concentrations. Slight beneficial impacts from increased base-line data.	Present slightly downward trend would continue. Slight increase in adverse impacts from livestock trampling.	Adverse impacts would cease; sites presently deteriorating would stabilize.	Adverse impacts from trampling would decrease; base-line data would increase slightly.	Severe impacts could occur from livestock concentrations; base-line data would increase slightly.
Recreation						
Hunting and Fishing (Activity Occasions)	24,709	53,995	30,869	65,592	53,995	20,073
Visual Resources						
Change in VRM Class (acres)	N/A	-3,627	0	0	0	-16,111
Wilderness						
Affect on Lands Under Review 1/	N/A	0	0	+	0	-
Livestock Grazing						
Initial Stocking (AUMs)	23,067	29,877	23,067	0	18,228	41,261
Stocking After 20 Years	N/A	32,230	23,067	0	19,601	45,617
Economics						
Livestock Income	$7,000,000	+$126,000	0	-$241,000	-$51,000	+$307,000
Livestock Employment (Number of Jobs)	Approx. 6,000	+17	0	-12	+2	+23
New Range Improvements	0	+$ 426,960	0	0	$211,850	$1,110,300
Regional Net Present Worth	0	+$1,083,402	0	-$2,231,565	-$285,070	+$2,167,058

1/ Impacts are rated as none (0); beneficial (+), more beneficial (++), and most beneficial (+++); and detrimental (-), more detrimental (--), and most detrimental (---).

SUN VALLEY
ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1980

LEGEND

PUBLIC LAND

STATE LAND

PATENTED LAND

E.I.S. BOUNDARY

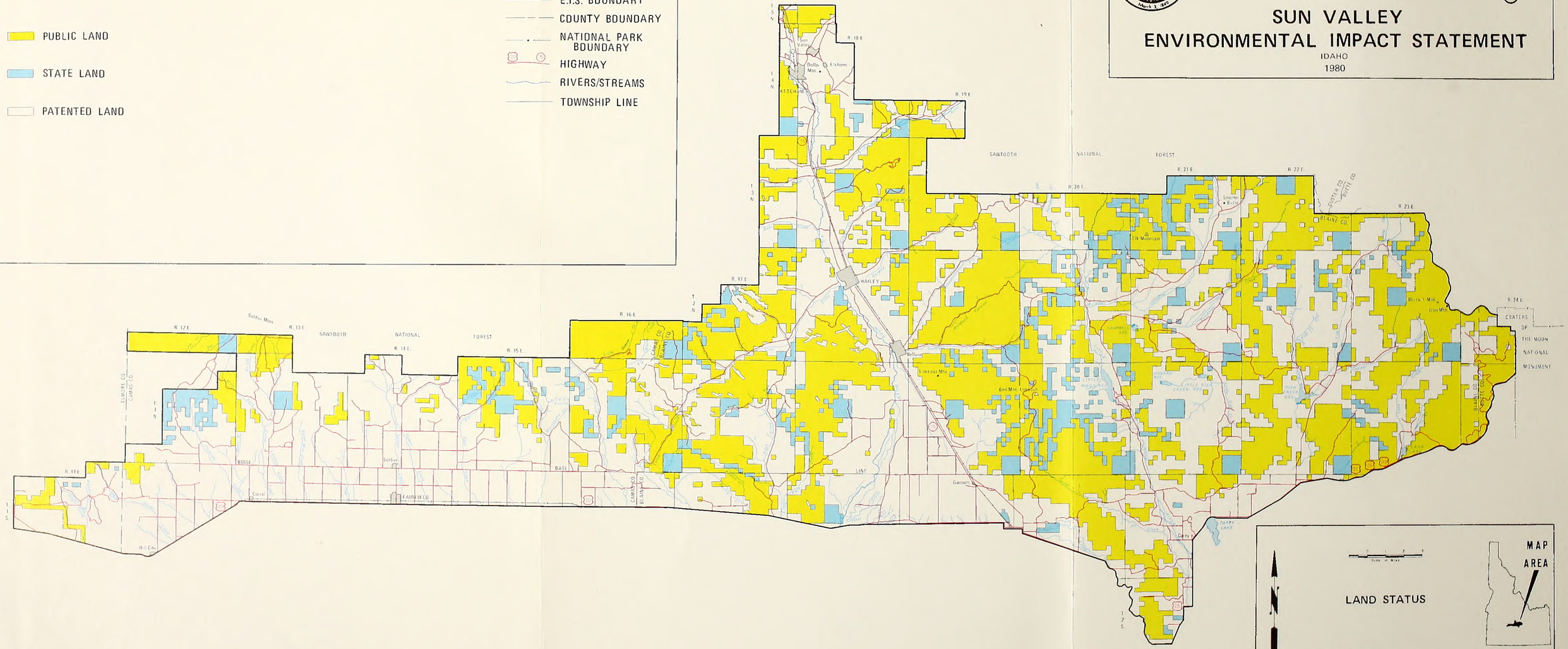
COUNTY BOUNDARY

NATIONAL PARK BOUNDARY

HIGHWAY

RIVERS/STREAMS

TOWNSHIP LINE



LAND STATUS

MAP AREA

IDAHO

MAP 2-1

SUN VALLEY
ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1980

LEGEND

ALLOTMENT KEY

ADP NO.	ALLOTMENT NAME	ADP NO.	ALLOTMENT NAME	ADP NO.	ALLOTMENT NAME	ADP NO.	ALLOTMENT NAME
101	Cow Creek	201	Wolftone	228	Indian Creek	316	Barton
102	Base Line	202	Camp Creek	229	Dungley	317	Muldoon
103	Roanhide	203	Square Mountain	230	Water Gulch	318	North Forty
104	Ear Creek	204	Red Elephant	231	Slaughterhouse	319	Little Fish Creek
105	Soldier	205	Croy Creek	232	Up. Slaughterhouse	320	Road Canyon
106	Rough Creek	206	McAtee	233	Martin Canyon	321	West Fork Fish Cr.
107	McHan Creek	207	Hatty Creek	235	Muldoon Canyon	322	H & S
108	Three Mile	208	Shirley	236	Cove	323	Stocking
110	Fairfield	209	Timber Gulch	237	Little Rock Creek	324	McFarland
111	Phillips Creek	210	Deer Creek SV	238	Brock Creek	325	Trail Creek
112	Powell Creek	212	Bullion Gulch	239	Scattered Tracts	326	Bennett
113	Mountain View	214	Kent Canyon	302	Dry Creek	327	Telfer
114	Deer Creek NC	215	Poison Creek	303	Little	328	Simpson
115	Piney	216	Rota Run	304	Queen's Crown	329	East Fork
116	Mill Canyon	217	Colorado Gulch	305	Silver Creek	330	Timber Butte
117	Elk Creek	218	West Bellevue	306	Hailey Creek	331	Shale
118	Hot Springs	219	Upper Rock Creek	307	Sheep Creek	332	Upper Fish Creek
119	Willow Creek	220	Homestead	308	Flat Top Sheep Co.	333	Iron Mine
120	Cherry Creek	221	Lower Rock Creek	309	Woodbury	334	Lava Lake
121	Little Beaver	222	Poverty Flat	310	Little Wood	335	Cottonwood
122	Big Beaver	223	Lake Creek	311	Elk Mountain	336	Crater
123	Sheep Trail	224	Elkhorn	312	Spring Creek	337	Baptie
124	Severe	225	Courier	313	Rocky Bar		
125	Sheep Point	226	Hyndman	314	Baird		
126	Fork	227	South East Fork	315	South One-Twenty		

- E.I.S. BOUNDARY
- COUNTY BOUNDARY
- NATIONAL PARK BOUNDARY
- HIGHWAY
- RIVERS/STREAMS
- TOWNSHIP LINE
- SECTION LINE

SECTIONALIZED TOWNSHIP

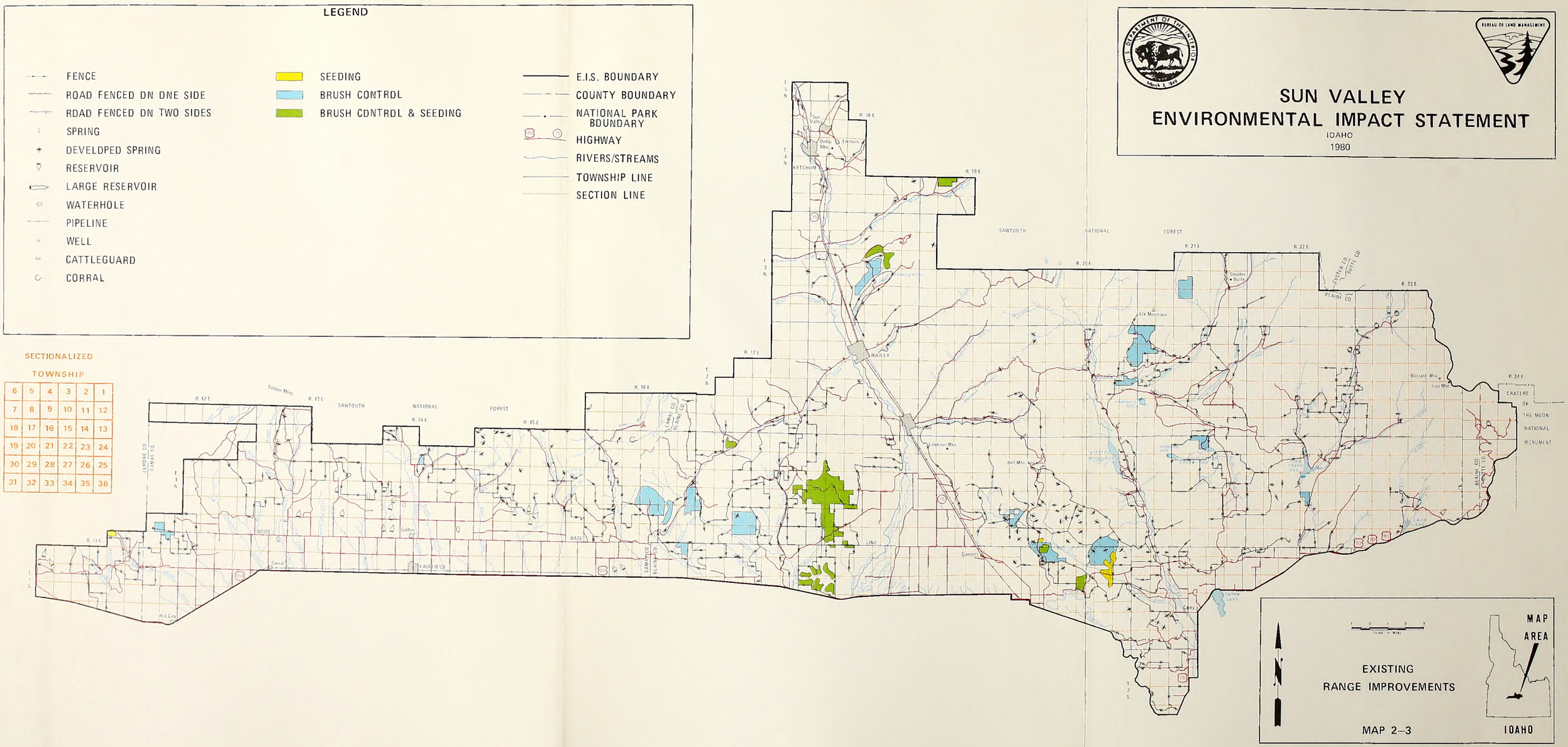
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

GRAZING ALLOTMENTS

MAP 2–2

MAP AREA

IDAHO


LEGEND
FENCE
ROAD FENCED ON ONE SIDE
ROAD FENCED ON TWO SIDES
SPRING
DEVELOPED SPRING
RESERVOIR
LARGE RESERVOIR
WATERHOLE
PIPELINE
WELL
CATTLEGUARD
CORRAL
SEEDING
BRUSH CONTROL
BRUSH CONTROL & SEEDING
E.I.S. BOUNDARY
COUNTY BOUNDARY
NATIONAL PARK BOUNDARY
HIGHWAY
RIVERS/STREAMS
TOWNSHIP LINE
SECTION LINE
SECTIONALIZED TOWNSHIP
6 5 4 3 2 1
7 8 9 10 11 12
18 17 16 15 14 13
19 20 21 22 23 24
30 29 28 27 26 25
31 32 33 34 35 36
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
SUN VALLEY
ENVIRONMENTAL IMPACT STATEMENT
IDAHO
1980
SAWTOOTH NATIONAL FOREST
SUN VALLEY
KETCHUM
HAILEY
FAIRFIELD
CRATERS OF THE MOON NATIONAL MONUMENT
BOISE BASE LINE
EXISTING
RANGE IMPROVEMENTS
MAP 2–3
MAP AREA
IDAHO

SUN VALLEY
ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1980

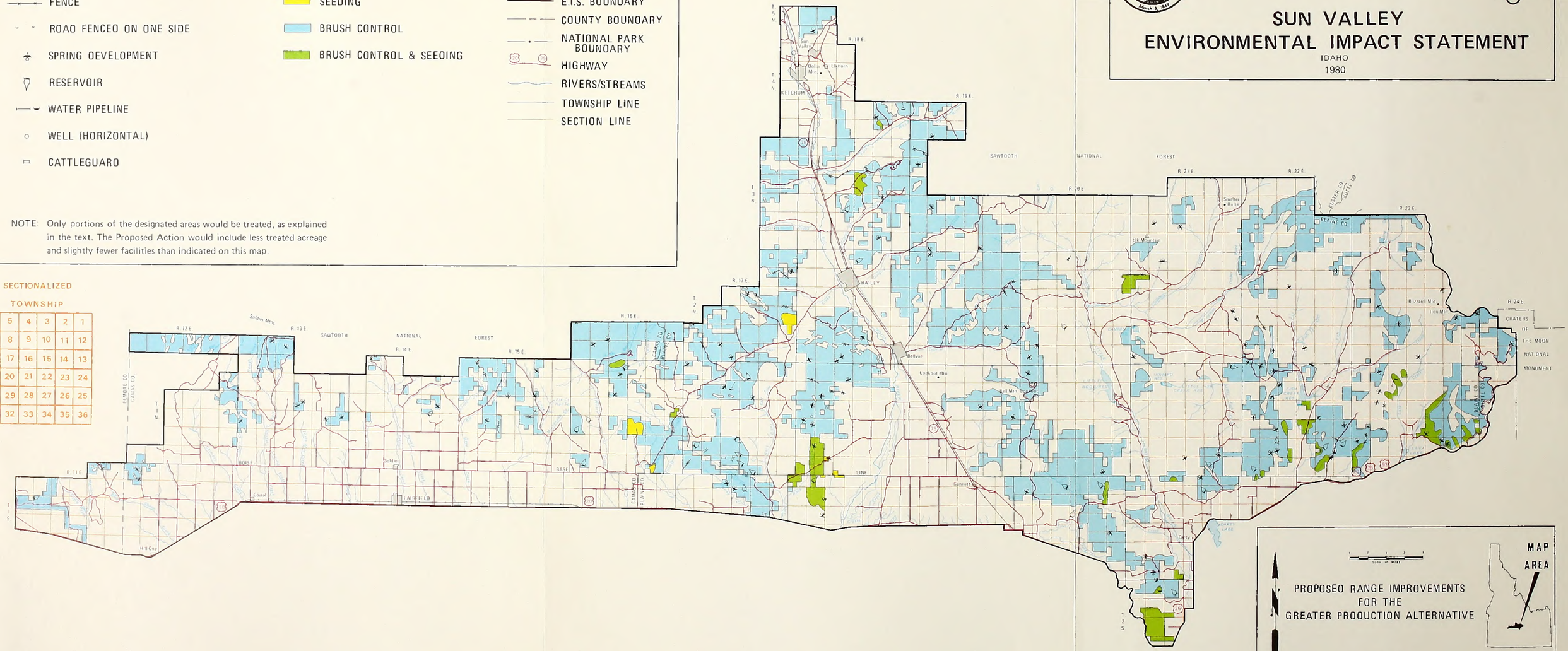
LEGEND

- FENCE
- ROAD FENCED ON ONE SIDE
- SPRING DEVELOPMENT
- RESERVOIR
- WATER PIPELINE
- WELL (HORIZONTAL)
- CATTLEGUARD
- SEEDING
- BRUSH CONTROL
- BRUSH CONTROL & SEEDING
- E.I.S. BOUNDARY
- COUNTY BOUNDARY
- NATIONAL PARK BOUNDARY
- HIGHWAY
- RIVERS/STREAMS
- TOWNSHIP LINE
- SECTION LINE

NOTE: Only portions of the designated areas would be treated, as explained in the text. The Proposed Action would include less treated acreage and slightly fewer facilities than indicated on this map.

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36



PROPOSED RANGE IMPROVEMENTS FOR THE GREATER PRODUCTION ALTERNATIVE

MAP 2–4

MAP AREA

IDAHO

CHAPTER 3

Affected Environment

3

CHAPTER 3

Affected Environment

CHAPTER 3

AFFECTED ENVIRONMENT

CLIMATE AND AIR QUALITY

The climate of the SVPA is influenced by the weather patterns that originate in the Pacific Ocean and move inland in a generally northeasterly direction. The climate is characterized by warm, generally dry summers and cold, to very cold winters. Mean annual temperatures are shown in Table 3-1. Wind is an important climatic component in the SVPA and a major evaporation agent.

Precipitation amounts vary with specific location within the SVPA. In general, precipitation amounts increase from south to north and from west to east. Average annual precipitation figures from several weather stations in or near the SVPA are shown in Table 3-1. Snowfall comes in a series of storms between the months of October and May. Duration of the snowpack varies with specific location within the SVPA, but generally speaking it may remain on higher elevations as much as a month longer than on the lower elevations.

Prevailing winds are generally from the west in the spring and summer (March through August) and from the east during the fall and winter (September through February). Winds generally reach their greatest intensity from March through June.

The growing (frost-free) season ranges from approximately 115-120 days in the northern portion of the SVPA to approximately 120-125 days in the southern portion.

There is very little air pollution in the SVPA. Air inversions occur occasionally, but usually dissipate rapidly in the summer. Winter inversions may last as long as two weeks. Range and forest fires and controlled burning of stubble, timber slash, and sagebrush are temporary sources of particulate matter, steam, and carbon dioxide. Particulate matter from these sources is usually dispersed in a relatively short time due to rapid air movement. Spring and fall plowing of farmlands is a source of airborne dust which usually affects only the immediate area.

Implementation of the proposed grazing management is not expected to affect either climate or air quality, and hence they will not be analyzed in Chapter 4.

TABLE 3-1

MEAN ANNUAL TEMPERATURE AND PRECIPITATION
FOR THE SVPA

Station	Elevation (feet)	Mean Annual Air Temperature (degrees F)	Mean Annual Precipitation (inches)
Craters of the Moon 1/	5897	41.9	16.2
Fairfield R. S. 1/	5065	41.5	15.5
Hailey R.S. 2/	5328	43.5	16.4
Hill City 2/	5090	41.4	15.5
Ketchum R.S. 1/	5890	38.3	18.4
Picabo 1/	4875	42.2	13.3
Sun Valley 1/	5980	38.6	19.3

1/ Figures for this station were compiled from available data at the Shoshone District Office.
2/ Data for this station represent long-term averages.

FORESTRY

In the SVPA approximately 16,700 acres of public land are forested. The forested areas generally occur along drainages and on slopes with a partial northerly aspect. Sufficient moisture exists in these areas to support tree growth. Further, tender seedlings are partially protected from the heat of the summer sun.

Stands consist almost entirely of Douglas-fir; ponderosa pine, lodgepole pine, limber pine, whitebark pine, aspen, subalpine fir, cottonwood, juniper, and alder are present in lesser numbers. Current estimates indicate that approximately 11,300 acres of forested public land in the SVPA could be managed for timber production.

The proposed grazing management is not expected to significantly affect the forestry resource. Consequently, it will not be analyzed in Chapter 4, Environmental Consequences.

GEOLOGY

The SVPA comprises two major physiographic provinces, the Northern Rocky Mountain Province on the north, and the Snake River Plains on the south. The topography of the unit ranges from the rugged foothills of the Pioneer Mountains with elevations up to 9285 feet at Blizzard Mountain, to the edges of the Snake River Plain with elevations less than 4800 feet at Carey (Map 3-1).

The areas of higher elevation are mostly composed of a complex assemblage of Paleozoic sediments and Tertiary volcanics, some portions of which are highly mineralized and have supported considerable mining activity over the past 100 years. The major drainages, outwash plains, and the Camas Prairie are overlain by Quaternary alluvium, where the optimum farming and grazing sites are found.

Oversteepened slopes and underlying zones of weakness can be a hazard in the SVPA, especially in the form of landslides. Several factors, both natural and man caused, lead to slope instability, which in turn may result in landslides. Certain man-related activities, such as removal of vegetation by fire, grazing, or other means, reduce the cohesive and stabilizing effects of plants. Overloading unstable ground, especially on a steeper slope, or removal of the toe of a steep slope, can also result in landslide conditions. Artificial watering, or a wet season of extremely high runoff, cause a build-up of pore pressures in a weak zone and lead to slope movement. Conditions promoting slope instability can be avoided by closely monitoring range conditions, especially in those areas where vegetative cover is vital to slope stability.

The proposed grazing management in the SVPA is not expected to affect either the geology or topography and hence these will not receive further consideration in this EIS.

SOILS

Soils Inventory

Soils of the SVPA were inventoried by the Soil Conservation Service, Bureau of Land Management and State Soil Conservation Commission beginning in 1975. The field work was completed in 1979. The survey was conducted

to show the extent and location of the soils and to obtain general information for planning purposes. All standards and procedures were followed to meet the requirements of the National Cooperative Soil Survey. The inventory was mapped at scales of 1:15,840, and 1:31,680 using phases of soil-series as a basis for developing the mapping units. Mapping units consisted of phases of soil series and complexes. Soil boundaries were drawn on aerial photos using a stereoscope and then field checked to establish accuracy. Individual soils were identified and described from soil pits and the percentages of each soil within a mapping unit were obtained by on-the-ground observation, photo interpretation, and some aerial observation by helicopter. An unpublished soil survey report showing the boundary and extent of mapping units and series and mapping unit descriptions is available at the Shoshone District Office.

Soil Groupings

Map 3-2 shows the distribution of three general soil groups and their component soil associations in the SVPA. The general groups are based on broad landscape characteristics and are composed of several soil associations, which include one or more similar mapping units identified in the inventory. Each soil association has its own distinctive pattern of soils and landscape features and consists of one or more soils of major extent and inclusions of soils of minor extent. The general soil groups are briefly described below. Their component soil associations are described in Appendix 3. Table A3-1 shows the distribution of soil associations by allotment. The characteristics of the individual soil series are summarized in Table A3-2.

Foothill and Mountain Soils

These shallow to very deep, well-drained soils are found on gently sloping to very steep slopes at elevations of 4800 to 9300 feet. They are generally moderately coarse textured when developed in granitic rocks, medium textured when derived from sedimentary rocks, and moderately fine to fine textured when formed in volcanics.

The average annual precipitation ranges from 12 to 24 inches, average annual air temperature is 37 to 44 degrees Fahrenheit and the frost-free period ranges from less than 60 to not more than 90 days.

Five soil associations are in this group and make up about 86 percent of the SVPA. About 25 percent is Povey-Vitale, 24 percent is Elksel-Hamtah, 17 percent is Moonstone-Earcree, 12 percent is Vitale-Blackspar-Lavacreek, and 8 percent is Gaib-Mulshoe-Winu.

This group is used primarily for livestock grazing and wildlife habitat and has a total production of about 800 pounds/acre/year. The erosion rate is moderate when the soils are well vegetated, but in their present condition the erosion rate is high.

Soils on Lava Plains and Low Hills

This group consists of very shallow to very deep, well-drained soils on nearly level to moderately steep slopes at elevations of 4700 to 6500 feet. They are medium-to-fine textured soils formed in residuum weathered from volcanic rocks, aeolian silts (loess) and sands, and volcanic ash.

The average annual precipitation ranges from 12 to 16 inches, average annual air temperature is about 41 to 45 degrees Fahrenheit, and the frost-free period is 60 to 100 days.

Four soil associations are in this group and make up about 9 percent of the SVPA. About 5 percent is Starhope-California; 3 percent is Elk-creek-Laurentzen-Polecreek; 1 percent is Lavaflow-Cinderhurst; and 0.3 percent is Deerhorn-Rehfield-Rock Outcrop.

This group is used mainly for livestock grazing and wildlife habitat and has a total production of about 800 pounds/acre/year. The erosion rate is low when the soils are well vegetated, but in their present condition the erosion rate is moderate.

Alluvial Soils

This group consists of very deep, well-drained soils on nearly level to moderately steep slopes at elevations of 4800 to 6000 feet. They are moderately fine- and fine-textured soils formed in alluvium.

The average annual precipitation ranges from 12 to 16 inches, average annual air temperature is about 39 to 43 degrees Fahrenheit, and the frost-free season is 60 to 90 days.

Two soil associations are in this group: about 2 percent is Simonton-Rands and 3 percent Drage-Molyneux. A third mapping unit, number 12 (agricultural land), is delineated on Map 3-2. It does not occur within the allotments in the SVPA, and is therefore not included in the percentages, acreages, or other data analyzed in this EIS.

This group is used mostly for livestock grazing and wildlife habitat and has a total production of about 1100 pounds/acre/year. The erosion

rate is low when the soils are well vegetated, but in their present condition the erosion rate is moderate.

Water Erosion

Erosion rates were determined using the Musgrave Equation (see Appendix 3). Soil is being removed (sheet and rill erosion) at an average rate of approximately 5.2 tons/acre/year within the SVPA. This is considered a high erosion rate. Table 3-2 gives present erosion rates by soil association and compares them to the rates expected with maximum vegetation cover (excellent range condition) and no vegetation cover (worst possible condition). Present erosion rates for each allotment are listed in Appendix 3 (Table A3-3).

Wind Erosion

In the SVPA, wind erosion is not a common problem. However, the fine sandy loam soils of association number 8 in the Silver Creek Allotment are subject to wind erosion and, when the vegetation is removed, erosion can be quite serious. Studies to determine the actual amount of wind erosion have not been conducted; therefore, actual wind erosion rates are not presently known.

TABLE 3-2

COMPARISON OF EXISTING EROSION RATES
TO MAXIMUM AND MINIMUM EROSION RATES BY SOIL GROUP

Soil Group and Association 1/	Minimum Erosion Rate Tons/Ac/Yr	Present Erosion Rate Tons/Ac/Yr	Maximum Erosion Rate Tons/Ac/Yr
Foothill & Mountain	2.5	5.7	12.5
Povey-Vitale	2.1	4.8	9.5
Elksel-Hamtah	3.2	7.4	16
Moonstone-Earcree	1.8	4.8	15
Vitale-Blackspar-Lavacreek	2.8	5.4	10
Gaib-Mulshoe-Winu	2.7	6.0	10
Lava Plains & Low Hills	0.74	1.7	6.2
Starhope-California	0.88	1.9	7.6
Elkcreek-Laurentzen-Polecreek	0.79	1.9	6.3
Deerhorn-Rehfield-Rock Outcrop	0.30	0.61	0.96
Lavaflow-Cinderhurst	0.042	0.045	0.065
Alluvial	0.45	1.1	3.8
Simonton-Rands	0.62	1.5	6.2
Drage-Molyneux	0.34	0.80	2.2
Agricultural Land 2/	-	-	-
SVPA Average	2.2	5.2	12

1/ Erosion rates were calculated by the Musgrave Equation (see Appendix 3). Minimum erosion rates are based on estimated ground cover in excellent range condition; existing erosion rates are based on existing ground cover; and maximum erosion rates are based on no vegetation cover (live vegetation and litter). Erosion classes based on erosion rates in tons per acre per year (tons/ac/yr) are as follows: 0 to 0.94 is low; 0.94 to 2.8 is moderate; 2.8 to 6.6 is high; 6.6 to 14 is very high; and more than 14 is extremely high.

2/ No erosion and/or soil information was gathered for this association.

The major water resources in the SVPA are the Big Wood and Little Wood Rivers. Important tributaries to the Big Wood River are East Fork Big Wood River, Croy Creek, Quigley Creek, Slaughterhouse Creek, and Seamans Creek (Smith 1959). There are several intermittent streams entering from the west. Major tributaries to the Little Wood River include Silver Creek, Muldoon-Friedman Creeks, Baugh Creek, Sheep Creek, and Cold Springs Creek. There are also numerous small drainages.

Camas Creek, just south of the SVPA, is supplied by several streams originating in the SVPA. These tributaries include Corral Creek, Three Mile Creek, Soldier Creek, Deer Creek, Elk Creek, Willow Creek, Camp Creek, Poison Creek, and Rock Creek. The SVPA encompasses three contained drainages (not tributaries to other surface drainages): Little Fish Creek, Fish Creek, and Lava Creek. Allotments considered important to water resources are listed in Table 3-3.

Water flow in the creeks in the SVPA responds basically to precipitation (mainly snowmelt runoff). Silver Creek, however, is fed almost entirely by ground water and responds to fluctuations in the supplying aquifer (Moreland 1977, Castelin and Chapman 1972). Peak surface runoff occurs between May and mid-July on most streams in the SVPA. Damage from flooding occurs most frequently along the Big Wood and Little Wood rivers.

Ground Water

Ground water is plentiful in the southern portion of the SVPA and is important in maintaining flows in Silver Creek and the lower Big Wood River. The higher elevations, where precipitation is over fifteen inches annually, supply significant amounts of water to the alluvial ground-water system. Areas having Tertiary volcanic rocks and pre-Tertiary sedimentary and granitic rocks generally have limited ground-water resources. Areas of alluvium, fluvioglacial sediments, and Snake River basalts are likely to have outstanding ground-water resources (Castelin and Chapman 1972).

Water use within the SVPA is primarily for irrigation and maintenance of aquatic habitat. For example, annual irrigation water use from the Big Wood River is approximately 24,000 acre-feet per year. Relatively small quantities of water are used for livestock grazing (approximately 25 acre-feet per year on public land).

TABLE 3-3

WATER RESOURCE CONDITIONS BY ALLOTMENT

Allotment 1/	Water Source	Miles in Allotment 2/ Total	Miles in Allotment 2/ Public	Erosion Rate 3/ (T/Ac/Yr)	Sediment Yield 4/ (T/Ac/Yr)	Bank Condition 5/	Upland Watershed Condition 6/	Soil Association Mapping Unit Number 7/
Baird	Little Fish Creek	.25	.25	5.0	1.5	Fair	Fair	6
	Little Fish Creek Reservoir							
Big Beaver	Big Beaver Creek	2.00	1.25	4.8	1.8	Fair	Good	3
Camp Creek	Camp Creek	7.00	5.00	4.6	1.8	Excellent	Fair	3
	Brush Creek	3.00	1.50					
Cherry Creek	Cherry Creek	1.70	1.70	4.8	1.4	N.E.	Fair	3
Colorado Gulch	Colorado Gulch	1.50	1.50	5.0	1.2	N.E.	Poor	1
Cow Creek	Cow Creek	.75	.25	3.8	1.7	N.E.	Excellent	3
Croy Creek	Camp Creek	1.50	1.50	4.8	1.8	Excellent	Good	3
	Poison Creek	.25	.25		1.6	Fair		5,7
	Croy Creek	5.00	.50		1.7	Fair		1,3
Deer Creek (NC)	Big Deer Creek	3.00	1.00	4.9	1.7	Fair	Excellent	3
Dry Creek	Line Creek	2.25	1.75	7.0	2.6	Poor	Fair	2
Ear Creek	South Fork Lime Creek	1.25	1.25	4.8	1.7	Excellent	Excellent	3
	Ear Creek	.75	.75			Excellent		3
	West Fork Corral Creek	1.50	1.50			N.E.		3
East Fork	Copper Creek	6.00	.25	4.9	1.4	Fair	Fair	4
	Fish Creek	2.00	.00		1.0	Good		11
	Fish Creek Reservoir	.25	.25		1.4	N.E.		11
Elkhorn	Big Wood River	(adjacent to		5.2	1.4	N.E.	Fair	1
	East Fork Big Wood River	allotment)			1.4	Fair		1
Flat Top Sheep Co.	Cold Springs Creek	3.00	.50	5.8	1.5	Good	Fair	6
	Timber Gulch	2.25	2.25		1.5	Good		5
	Friedman Creek	6.00	3.25		.9	Good		11
	Trail Creek	2.50	.25		1.4	Fair		1
Hailey Creek	Fisher Canyon Creek	.25	.25	7.3	1.2	Fair	Fair	1
	Porcupine Creek	.10	.10		1.2	Good		1
Indian Creek	Ohio Gulch	5.00	4.00	5.1	1.4	N.E.	Fair	1,5
	Big Wood River	(adjacent to			1.5	N.E.		1,2,5
	Indian Creek	allotment)			1.6	N.E.		1,2
Iron Mine	Left Fork Copper Creek	1.25	1.25	5.3	1.2	Excellent	Fair	4
Lava Lake	Lava Creek	8.00	.20	4.1	1.6	Fair-Good	Good	4,11
Little Beaver	Little Beaver Creek	4.00	2.00	5.1	1.5	Good	Fair	3,5
	Big Beaver Creek	1.50	.75		1.5	Fair		3
Little Rock Creek	Little Poison Creek	4.00	.30	1.8	1.1	Poor-Fair	Fair	7
Little Wood	Little Wood River	4.00	2.50	6.0	1.5	Excellent	Fair	1
Muldoon	Thompson Creek	4.00	.50	6.1	2.6	Fair	Fair	2
	Argosy Creek	1.00	.70		1.7	Excellent		1
	Muldoon Creek	1.00	.75		2.1	Good		1,2,5,11
Muldoon Canyon	Seamans Creek	5.00 (on one side)	4.00	5.1	1.2	N.E.	Fair	1
Poison Creek	Poison Creek	4.50	1.55	3.5	1.6	Fair	Fair	5,7
	Little Poison Creek	2.00	.15		1.4	Poor-Fair		7
	Rock Creek	2.00	.25		1.4	Fair		7
Quigley	Quigley Creek	3.00	.60	4.8	1.4	Excellent	Fair	1
Sheep Creek	Sheep Creek	5.00	2.40	6.9	2.0	Poor-Fair	Fair	2
Soldier	Ear Creek	.75	.00	4.8	1.2	Excellent	Excellent	3
	Rough Creek	3.00	1.45		1.2	Excellent		3

TABLE 3-3 (cont.)

WATER RESOURCE CONDITIONS BY ALLOTMENT

Allotment 1/	Water Source	Miles in Allotment 2/ Total	Miles in Allotment 2/ Public	Erosion Rate 3/ (T/Ac/Yr)	Sediment Yield 4/ (T/Ac/Yr)	Bank Condition 5/	Upland Watershed Condition 6/	Soil Association Mapping Unit Number 7/
South Esst Fork	Esst Fork Big Wood River	1.00	1.00	4.8	1.4	Good	Good	1
Spring Creek	Spring Creek	3.00	.50	5.2	.9	Good	Fair	7,11
Stocking	Copper Creek	5.00	.25	5.6	1.1	Fair	Fsir	4
Upper Fish Creek	Fish Creek	.50	.50	5.9	1.7	Good	Fair	2
	Long Csnyon Creek	1.00	.25		1.7	Good		2
West Bellevue	Big Wood River	(adjacent to allotment)		5.0	1.6	N.E.	Excellent	1,3

1/ Allotments evaluated in this table were selected based on their potential to affect water resources. Only allotments in close proximity to perennial water or major channels were evaluated.

2/ Total snd public miles of water source in each allotment were estimated from land status maps.

3/ Erosion rates were determined from Table A3-3.

4/ Sediment yield was estimated using the Pacific Southwest Interagency Committee Method (PSIAC 1968). No measured sediment yield data are available; therefore, estimates should not be considered as absolute values.

5/ Bank condition represents a composite summary of ocular bank stability and vegetative bank condition evaluated by Reininger (1978). N.E. stands for "not evaluated."

6/ Upland watershed condition is based on ecological condition given in Table A5-2.

7/ The mapping unit numbers represent the soil associations shown on Map 3-2 and described in the Soils section of this chapter.

Water Quality

Chemical water quality in the SVPA is very good, with total dissolved solids usually less than 300 milligrams per liter (USGS 1976-1979). Although chemical water-quality data are limited, water in the SVPA appears to be suitable for irrigation, aquatic habitat, and potable water supply (with treatment).

Perhaps the most serious water quality problem is caused by sediment. Many stream areas have high amounts of sediment that reduce the productivity of the aquatic habitat. Few data exist on sediment characteristics for the SVPA.

Sedimentation has two basic components, the channel component and the watershed component. Deterioration of a stream channel can result in accelerated sedimentation even though the upland watershed may be in good condition. Conversely, a watershed in poor condition can accelerate sedimentation although the stream channel may be in a fairly stable condition. Both components must be considered when evaluating stream sedimentation. Table 3-3 lists the apparent stability of selected stream channels in areas considered important to water resources in the SVPA.

Watershed Condition

Watershed condition depends largely on soil characteristics and vegetation. Soil characteristics determine the potential for erosion, while vegetation determines the specific erosion rates. A watershed in good or excellent condition will have a vegetation cover approaching the maximum natural potential, and surface runoff and erosion will reflect the amounts expected in an undisturbed condition. When vegetation is reduced or soils are disturbed, the watershed condition deteriorates. In such a state surface runoff will be higher than under natural conditions, and the increased runoff will accelerate erosion. On severely deteriorated watersheds, erosion reaches a maximum, flooding may be greatly increased, and the watershed may be unable to return to a natural condition. This results in decreased vegetation production. The Soils and Vegetation sections evaluate erosion and vegetation condition, respectively. Table 3-3 lists the apparent watershed condition for areas in the SVPA considered important to water resources.

Introduction

The SVPA has ten major ecological communities: mountain big sagebrush, low sagebrush, nonproductive (rock outcrop and talus), mountain brush, Douglas-fir, quaking aspen, meadow/riparian, seedings, lava, basin big sagebrush, and cultivated/disturbed. Each ecological type is characterized by different kinds and proportions of plant species in a particular land area (ecological sites). Acres of ecological communities and corresponding ecological sites are displayed in Appendix 5, Table A5-1. Map 3-3 shows the locations of ecological complexes, rather than ecological sites, because the interspersion of ecological sites makes them difficult to delineate at a small scale. Detailed vegetation maps and ecological site descriptions are available at the Shoshone District Office.

Ecological sites were described and sampled in a vegetation inventory and analysis (1977-1979) and correlated with a third-order soil survey using methods described in Appendix 5. Acres of ecological sites by allotment have been tabulated and are available at the Shoshone District Office.

Ecological Condition

Ecological condition is the present vegetative composition of an area in relation to the climax (natural potential) plant community for that area. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble the climax community. Condition can be considered an ecological rating of the present plant community, although on most areas it is unlikely that the ecological potential will ever be fully attained. Plant composition for each climax ecological site was determined from 1977-1979 vegetation inventory, range site guides, and records from the Soil Conservation Service.

Condition data for the planning area were collected in conjunction with the 1977-1979 vegetation inventory. Most rangeland was evaluated in accordance with the ecological condition descriptions discussed above, but land treatment areas (4,445 acres or approximately 1 percent of the total acreage of the SVPA) were assessed only in terms of the quality of livestock forage. In the SVPA, 36,383 acres (15 percent) were rated in good condition, 159,467 acres (66 percent) fair, and 43,192 acres (18 percent) poor. Appendix 5, Table A5-2, summarizes the existing condition of all allotments in the SVPA and Map 3-4 shows ecological condition for the area.

Trend

Range trend is the direction of change in ecological condition. Trend is determined by studying changes in vegetation and soil characteristics that result directly from grazing intensity and from climatic and other natural factors.

Trend for the SVPA was determined by comparing apparent trend observations and BLM trend plot studies. The apparent trend data were collected as a component of the 1977-1979 vegetation inventory and as part of earlier watershed studies. Trend plots are permanently marked, continuing studies which are read on a periodic basis.

Presently, 16,395 acres (7 percent) of the SVPA show an upward trend and 10,243 acres (4 percent) show a downward trend. The remaining 213,440 acres (89 percent) have a stable trend. Range trend estimates are shown by allotment in Appendix 5, Table A5-2.

Cover

Cover is the amount of ground surface protected by canopies of live plants, litter (dead organic material), and rocks. Cover was estimated at each production plot location using 9.6-square-foot hoops. Previously developed ecological site descriptions and watershed transect data were also used to develop the ecological site effective ground cover values shown in Appendix 5, Table A5-3.

Productivity

Vegetation productivity is the air-dry weight in pounds per acre of the above-ground, yearly, herbaceous production. Production data were gathered by ecological site and condition class during the 1977-1979 forage inventory.

The present total yearly production for the SVPA is 197,341,470 pounds, of which 63,738,559 pounds is considered usable. Vegetation production and composition data by allotment are listed in Appendix 5, Table A5-6.

Suitability

Suitability refers to the capability of forage-producing land to be grazed by livestock on a sustained yield basis without damage to the soil and vegetation. Suitable range should not be confused with "usable" range. Many areas can be grazed by livestock and hence are usable, but these areas may not be suitable for grazing on a long-term basis because of the resulting damage to them or to adjacent areas.

Suitability for the SVPA was determined by evaluating forage production, steepness of slope, and distance from water. Suitability criteria used in this EIS are presented in Appendix 2.

Due to the steep terrain of the SVPA, more range is suitable for sheep grazing than for cattle grazing. Twenty percent (48,125 acres) of the public land in the SVPA was rated unsuitable for cattle while only 5 percent (11,575) was rated unsuitable for sheep. Acres of unsuitable range by allotment are shown in Appendix 5, Table A5-2. Detailed locations of unsuitable range in each allotment are available on 7.5-minute USGS topographic maps at the Shoshone District Office.

Meadow/Riparian Vegetation

The SVPA has 3,546 acres (0.9 percent) of meadow/riparian vegetation consisting of sedges, grasses, rushes, camas, iris, and willows. These communities are found along perennial and intermittent streams, around reservoirs, and at spring sites.

Adverse effects on riparian vegetation occur because livestock, especially cattle, tend to congregate around water sources. Poor distribution of livestock in the many canyon bottoms of the SVPA has led to heavy utilization and consequent trampling of riparian vegetation. As shown on Map 3-4, numerous narrow strips of poor ecological condition are found in canyon bottoms and low areas where the meadow/riparian vegetation type occurs.

Threatened and Endangered Plants

During the spring and summer of 1977 a study was undertaken to compile information and status of threatened and endangered plants on public lands in the SVPA. The final report, Endangered and Threatened Plant Inventory - Sun Valley ES Area, is on file at the Shoshone District Office.

Species considered in the study included those on the Smithsonian List of Threatened or Endangered Fauna or Flora (USFWS 1975), the revised Smithsonian endangered list (USFWS 1976) and the threatened and endangered list developed by the Rare and Endangered Plants Technical Committee, Idaho Natural Areas Council (Henderson et. al. 1977, Steele 1977).

Twenty-three species which could occur in the area were considered. Only five species are still candidates for listing in the Federal Register (USFWS memorandum, 1980) as either threatened or endangered (see Appendix 5, Table A5-4).

As required by Section 7 of the Endangered Species Act, the U.S. Fish and Wildlife Service (USFWS) was consulted regarding impacts to threatened and endangered plant species. On October 20, 1980, J. Gebhardt of the USFWS Boise Area Office indicated that the proposed action and alternatives would not jeopardize threatened and endangered plants, provided that site-specific consultations were held as needed. Because site-specific clearances are required prior to project implementation, no further analysis of impacts to threatened and endangered species will be made in this EIS.

WILDLIFE

Introduction

The SVPA contains numerous species of birds, mammals, fish, reptiles and amphibians. A complete list of these, with relative abundance and occurrence by habitat areas, is available at the Shoshone District Office. This EIS addresses only those major species that would be significantly affected by the proposed action and alternatives.

Big Game

Mule deer, elk, and antelope occur in the SVPA (Map 3-5). Table 3-4 lists approximate acres of various habitat categories for these species.

TABLE 3-4

ACRES OF BIG GAME HABITAT ON PUBLIC LAND
IN THE SVPA

Deer			Elk		Antelope
Summer	Winter	Migration	Summer	Winter	Summer
222,500	41,200	112,800	15,700	33,200	22,000

For purposes of forage allocation, deer, elk, and antelope use was computed by animal months (deer, elk, or antelope months as defined in the glossary) per season per allotment (Appendix 6, Table A6-1). Animal months refer only to the amount of use on public land.

Mule Deer

Deer are widely scattered throughout the SVPA in the summer. The highest concentrations are in the more moist areas with scattered aspen and conifer patches.

Deer winter use is concentrated on a few, primarily south-facing, slopes in the mountain-sagebrush zone. Snow forces the deer from the summer ranges down onto their winter ranges. Their date of arrival varies from year to year. The period November 15 to April 15 was used to calculate the winter use on allotments.

The deer winter range has an overall condition rating of poor to fair, with a static trend. Deer summer range is in fair to good condition with a static to upward trend. Population levels are increasing.

Deer food habits vary from a high use of shrubs in the winter to a relatively high use of forbs in the summer. Table 3-5 shows the pounds and percentages of forbs, grasses, and shrubs used to calculate the forage demand for deer. These figures are based on a total consumption of 130 pounds of air-dried forage per deer each month. During the winter deer consume much bitterbrush (Purshia tridentata), making it a key species on the winter ranges.

TABLE 3-5

MONTHLY PERCENTAGES AND POUNDS OF FORBS, GRASSES, AND SHRUBS ALLOCATED TO MULE DEER IN THE SVPA BY SEASON

Season	Grass		Forbs		Shrubs		Dates
	Pounds	Percent	Pounds	Percent	Pounds	Percent	
Spring	46	35	31	24	53	41	5/1-6/15
Summer	7	5	65	50	58	45	6/16-8/31
Fall-Winter	10	8	29	22	91	70	9/1-4/30

Elk

Although there is some summer use in the SVPA, most elk use on public land occurs during the winter. Elk winter range (Map 3-5) is usually at higher elevations than deer winter range because elk can tolerate deeper snow. Elk winter range is in fair condition with a static trend. Population levels are increasing slightly.

Elk diets (Table 3-6) are based on a total consumption of 667 pounds of air-dried forage each month.

TABLE 3-6

MONTHLY PERCENTAGES AND POUNDS OF FORBS, GRASSES, AND SHRUBS ALLOCATED TO ELK IN THE SVPA BY SEASON

Season	Grass		Forbs		Shrubs		Dates
	Pounds	Percent	Pounds	Percent	Pounds	Percent	
Spring	340	51	287	43	40	6	5/1-6/15
Summer	334	50	253	38	80	12	6/16-8/31
Fall-Winter	334	50	226	34	107	16	9/1-4/30

Antelope

Most antelope use in the SVPA (Map 3-5) occurs between March 1 and September 30. Antelope use rolling, open sagebrush hills scattered with meadows and riparian areas. Antelope habitat has an overall forage condition of fair with a static range trend. Population levels are increasing.

Antelope diets (Table 3-7) are based on a total consumption of 54 pounds of air-dried forage each month.

TABLE 3-7

MONTHLY PERCENTAGES AND POUNDS OF FORBS, GRASSES, AND SHRUBS ALLOCATED TO ANTELOPE IN THE SVPA BY SEASON

Season	Grass		Forbs		Shrubs		Dates
	Pounds	Percent	Pounds	Percent	Pounds	Percent	
Spring	12	22	15	28	27	50	5/1-6/15
Summer	3	6	21	39	30	55	6/16-8/31
Fall-Winter	3	6	3	6	48	88	9/1-4/30

Upland Game

Sage grouse is the dominant upland game species in the SVPA. Twenty-one strutting areas and corresponding crucial nesting areas have been identified (Map 3-6). Sage grouse typically use the sagebrush-bunchgrass areas. Nests are usually under a sagebrush plant. Sage grouse also use meadows and other wetland areas during the late spring and summer when they feed heavily on insects and forbs. Sagebrush is the major food the rest of the year. No sage grouse winter areas have been identified in the SVPA.

Blue grouse are widely scattered throughout the northern portions of the SVPA where riparian areas are close to stands of timber. Blue grouse raise their broods in the riparian areas, feeding on insects and succulent vegetation. During the winter, the birds usually ascend to slightly higher elevations where they roost in fir groves and feed almost exclusively on evergreen needles. Many of the riparian areas in the SVPA have brood densities of from two to four per mile. The trend of the population is not known.

Mourning doves and chukars occur throughout the SVPA, the former nesting in most habitat areas and the latter in rocky canyons, near water. Nuttall's cottontail rabbits are common in riparian areas, in dense vegetation, and in lava flows with abundant vegetative cover.

Aquatic and Riparian Habitat

An aquatic habitat inventory of the major streams in the SVPA was conducted for the BLM by the Idaho Department of Fish and Game (Reininger 1978). Although concentrating on aquatic habitat, riparian habitat was evaluated as it affected the aquatic habitat condition (Map 3-6). Table 3-8 lists the habitat condition of streams on public land.

The largest and most abundant game fish in the SVPA is the rainbow trout. Brook trout inhabit the headwaters of many of the streams. The Wood River sculpin, which is classified as a sensitive species, occurs in fourteen of the streams sampled. Sensitive species are discussed in the following section of this chapter.

Wildlife use riparian areas more than any other habitat type. Big game and upland game use riparian areas for water, food, and cover. Many species of non-game birds and mammals use this habitat during part or all of their life cycle. Many other species, including beaver, muskrat, waterfowl, and several species of amphibians, live in riparian areas almost exclusively. Vegetative production and the diversity of vegetation structure are highest in riparian areas, greatly enhancing their value to wildlife.

Riparian areas are also attractive to livestock, especially cattle, because they provide shade, water, and food. As a result, livestock tend to congregate in them and degrade many of the wildlife values. The poor and fair conditions of many streams in the SVPA can be directly attributed to livestock use.

TABLE 3-8

MILES AND HABITAT CONDITIONS OF SELECTED STREAMS
ON PUBLIC LANDS IN THE SVPA 1/

Stream	Miles of Stream by Habitat Condition Class on Public Land				Total Miles on Public Land
	Excellent	Good	Fair	Poor	
Argosy Creek 2/	.70				.70
Big Beaver Creek			.50	.75	1.25
Big Deer Creek				1.00	1.00
Camp Creek	.75	.75			1.50
Cold Springs 2/			.50		.50
Copper Creek 2/			.25	.25	.50
Left Fork Copper Creek 2/	1.25				1.25
Croy Creek				.50	.50
Ear Creek	.75				.75
East Fork Big Wood River 2/		1.00			1.00
Fish Creek		.50			.50
Fisher Canyon Creek 2/			.25		.25
Friedman Creek 2/	.50	.75	1.25	.75	3.25
Lava Creek		.10		.10	.20
Line Creek				1.75	1.75
Little Beaver Creek			2.00		2.00
Little Fish Creek				.25	.25
Little Poison Creek			.30	.15	.45
Little Wood River 2/		2.50			2.50
Long Canyon Creek 2/		.25			.25
Muldoon Creek 2/			.75		.75
Poison Creek			1.00	.80	1.80
Porcupine Creek 2/			.10		.10
Quigley Creek		.60			.60
Rock Creek 2/			.25		.25
Rough Creek		.10	1.35		1.45
Sheep Creek	1.70			.70	2.40
South Fork Lime Creek 2/	.25	1.00			1.25
Spring Creek			.50		.50
Thompson Creek	.25		.25		.50
Timber Gulch Creek			2.25		2.25
Trail Creek 2/				.25	.25
TOTAL	6.15	7.55	11.5	7.25	32.45
PERCENT	19%	23%	36%	22%	100%

1/ The streams, mileages, and habitat conditions listed are based on a study conducted by the Idaho Fish and Game Department. The study report (Reininger 1978) is available at the Shoshone BLM District Office.

2/ The Wood River sculpin, a "sensitive" species, was found to inhabit these streams.

Endangered, Threatened, and Sensitive Species

Endangered Species

Endangered species are those considered by the Federal Government to be in immediate danger of extinction. The endangered bald eagle migrates through the Wood River Valley. At times of open water in the fall, several of these birds can be found along the Big Wood River, although they have not been observed on public land in that area. Eagles could also occur along the Little Wood River and near Little Wood and Fish Creek Reservoirs.

Although there are no records of the peregrine falcon in the SVPA, this endangered species has been reported in southern Idaho, and the bird could conceivably pass through the SVPA on occasion.

No nesting or critical habitat for either of these birds is known in or near the SVPA.

Threatened Species

Threatened species are those that could become endangered with minor changes in habitat or population levels. There are currently no known threatened wildlife species within the SVPA.

Sensitive Species

A sensitive species is one which the Idaho Department of Fish and Game and the BLM have determined to be worthy of close scrutiny because of its susceptibility to extinction. Sensitive species that are known or are likely to occur within the SVPA are: bobcat, river otter, osprey, merlin, mountain quail, white-faced ibis, ferruginous hawk, long-billed curlew, western burrowing owl, and Wood River sculpin. Of these, only the bobcat, mountain quail, and Wood River sculpin are known to occur regularly.

The bobcat occurs sparsely throughout the SVPA in rocky canyons and lava flows. Prey species of the bobcat are birds and small mammals.

Mountain quail occur in limited numbers in the Little Wood River, Fish Creek, and Muldoon Creek drainages. The population in the SVPA has

traditionally been small because of the sub-zero winter temperatures and heavy snowfall.

The Wood River sculpin was found to occur in fourteen of thirty-two drainages surveyed during 1978. The streams are: Argosy Creek, Cold Springs Creek, Copper Creek, Left Fork Copper Creek, East Fork Big Wood River, Fisher Canyon Creek, Friedman Creek, Little Wood River, Long Canyon Creek, Muldoon Creek, Porcupine Creek, Rock Creek, South Fork Lime Creek, and Trail Creek.

CULTURAL RESOURCES

A total of 83 cultural resource sites or site complexes have been formally recorded in the SVPA, and many more historic sites are known to exist but have not been formally recorded. Of the 83, 40 are wholly or partly on public land (Table A7-1, Appendix 7).

Cultural resource sites currently listed on the National Register of Historic Places are historic sites on private property in or near the communities of Bellevue, Hailey, and Ketchum and are not being affected by livestock grazing. Currently, no prehistoric cultural resource sites in the SVPA are listed on the National Register.

Known cultural resource sites in the SVPA can be generally described as being in fair to good condition. Of 46 sites for which the condition was known or could be determined, 32.6 percent were in good condition; 32.6 percent in poor; 19.6 percent in fair; 6.5 percent in excellent; and 8.7 percent destroyed. The condition of 35 sites in the SVPA, mostly on private lands, could not be determined, and these are therefore classed as unknown (Table A7-1).

Of the 45 sites in the SVPA for which there is sufficient data on agents of deterioration, 44.4 percent (19 sites) have been damaged by livestock trampling. Trampling is often intensified by accompanying erosion. Surface erosion was recorded as a deteriorating agent at 35.6 percent (15 sites) of the 45 site sample. Further, these and other deteriorating agents act in their own ways to contribute to the weathering and decay of sites.

Appendix 7 describes inventory procedures and known cultural resource site data for the SVPA.

Major Recreation Values

Public lands within the SVPA play an important role in providing a diverse choice of recreation opportunities. The recreation activities that would be directly affected by the proposed action or the alternatives include off-road vehicle (ORV) use, hunting, and fishing. Nonconsumptive uses such as camping, picnicking, sightseeing, nature study, and photography could be indirectly affected by changes in ORV use, hunting, and fishing, but are not specifically analyzed in this EIS. No developed recreation sites would be significantly affected by either the proposed action or any of the alternatives.

Information from the 1977 Idaho Outdoor Recreation Plan, prepared by the Idaho Department of Parks and Recreation, was used to estimate projections of recreation use for 1980 and 1990 in the SVPA (Table 3-9). Although these figures are demand estimates and may not represent actual use, they do provide reasonable estimates of trends in recreation use and recreation use relative to other recreation activities.

Existing recreation use is experiencing upward trends. The 1977 Idaho Outdoor Recreation Plan estimated that overall recreation use will increase 39 percent between 1980 and 1990. Table 3-9 lists activity occasions, a standard unit for measuring recreation use, defined as participation by one person in one activity for all or part of one day.

TABLE 3-9

PROJECTED RECREATION USE IN THE SVPA

	1980	1990
Off-Road Vehicle	24,646	36,699
Hunting	15,521	19,272
Fishing	9,188	11,597
Total	49,355	67,568

Off-Road Vehicles

Oppo'rtunities for motorcycle, four-wheel drive vehicle, and snowmobile use are found throughout the SVPA. There are many miles of primitive roads and trails which provide excellent opportunities for riding. Many areas are suitable for cross-country travel away from roads and trails. The BLM has proposed that ORV parks and snowmobile staging areas be established in heavy use areas. ORVs are frequently used for transportation in conjunction with hunting, fishing or other recreation activities. Heavy brush presently limits cross-country ORV use in some otherwise suitable areas. Fences within the SVPA act as barriers to most ORV use.

The 1977 Idaho Outdoor Recreation Plan estimates that ORV activity occasions will increase 49 percent between 1980 and 1990 in the SVPA.

Hunting

The SVPA provides valuable opportunities for hunting elk, mule deer, antelope, and upland game.

The 1977 Idaho Outdoor Recreation Plan estimates that hunting activity occasions will increase 24 percent between 1980 and 1990. If increased hunting demand is not matched by increases in populations of game animals, success ratios and/or the quality of the experience can be diminished.

Fishing

Rivers, creeks and reservoirs provide habitat for a cold-water game fishery. In the past, fisheries in the Little Wood and Fish Creek Reservoirs have been affected by large draw downs for irrigation. The Little Wood Reservoir does have a minimum pool requirement. Angler use of trout streams is generally heavier in accessible areas close to towns and lower in more remote areas.

The 1977 Idaho Outdoor Recreation Plan estimates that fishing activity occasions will increase 26 percent between 1980 and 1990 in the SVPA.

VISUAL RESOURCES

The BLM visual resource management (VRM) system described in BLM Manual 8400 (Appendix 8) was used to evaluate the quality and importance of the visual resource (scenery). The VRM classes are determined by scenic quality, visual sensitivity, and distance zones. The VRM classes of the SVPA are shown on Map 3-7, and BLM acres by class are tabulated in Table 3-10.

TABLE 3-10

PRESENT VISUAL RESOURCE CLASS
OF PUBLIC LAND IN THE SVPA

VRM Class	Public Land Acres 1/	Percent of Total Public Land Acres
I	13,678	6%
II	21,350	9%
III	69,530	28%
IV	140,532	57%
V	150	less than 1%
TOTAL	245,240	100%

1/ Acreage figures include all public land in the SVPA, including 5,207 acres not within allotments.

For each VRM class, specific management objectives have been established that allow for differing degrees of contrast between a landscape's existing character and its character after any management activity. To measure the the degree of contrast caused by a management action, a contrast-rating method is used. This method and the VRM class objectives are described in Appendix 8.

WILDERNESS

The wilderness inventory process has been completed in accordance with Section 603(c) of the Federal Land Policy and Management Act and subsequent

BLM directives. Two Wilderness Study Areas (WSAs) were identified (Map 3-7) in the Accelerated Inventory Final Decision for the SVPA which was announced July 6, 1979. The qualifying areas possess wilderness characteristics of size, naturalness, and outstanding opportunities for solitude or primitive recreation. The WSAs will be evaluated through BLM planning procedures to determine their suitability or non-suitability for preservation as wilderness.

Although the Little Wood River WSA contains less than 5,000 acres of public land, it is contiguous with a Forest Service RARE II area (Pioneer Mountains, 4-201), which has been endorsed by the President for addition to the National Wilderness Preservation System. The continued WSA status of this unit is contingent on continued consideration of the Pioneer Mountains RARE II area for wilderness designation.

Table 3-11 lists WSAs and affected grazing allotments in the SVPA.

TABLE 3-11

WILDERNESS STUDY AREAS

WSA Number	WSA Name	Public Land Under Wilderness Review (acres)	Allotments Affected
53-4	Little Wood River	4,265	Sheep Creek Little Wood Muldoon
53-5	Friedman Creek	9,413	Flat Top Sheep Co. Muldoon Trail Creek Iron Mine
	TOTAL	13,678	

Production of cattle and sheep is an important land use within the SVPA. Currently, 84 permittees graze 10,235 cattle and 45,492 sheep on the 97 grazing allotments. Of the 245,240 acres of public land in the SVPA, 240,033 are allotted for livestock grazing. The existing active grazing preference on public lands is 36,504 AUMs. The five-year average licensed use (1975-1979) is 23,067 AUMs (63 percent of the active preference). Current grazing use is shown in Table 3-12. Cattle account for 68 percent of the current use on public land within the SVPA, sheep for 32 percent.

Several permittees utilize National Forest and State lands in conjunction with their BLM allotments. Others leave BLM-administered public lands by June 20, graze Forest Service lands during the summer, and return to the SVPA after August 1.

Almost all of the sheep permittees schedule their lambing operations in January and February. Ewe/lamb bands begin grazing lower-elevation public lands in the Shoshone District around April 1, and move into the SVPA after May 1. Some of these bands move back and forth between Forest Service and BLM allotments throughout the summer. Lambs are trucked to market in July and August. Most of the sheep bands leave the SVPA by November 1 and move to lower-elevation allotments and private land.

Most of the cattle permittees schedule their calving operations in February and March; a few schedule these operations in October and November. Most of the cattle begin grazing around May 1, but some do not begin until July 1. Closing dates for grazing vary from July 31 to November 30. Cattle are moved to private pasture when they leave the allotments in the SVPA.

TABLE 3-12

CURRENT LIVESTOCK GRAZING USE IN THE SVPA

Allotment Name	Cattle 1/		Sheep 1/	
	AUMs	Animals	AUMs	Animals 2/
Baird	34	73	23	820
Baptie	8	19	32	380
Barton	100	20	---	---
Base Line	131	561	---	---
Bennett	25	27	---	---
Big Beaver	130	44	82	1,465
Brock Creek	12	2	---	---
Bullion Gulch	---	---	104	620
Camp Creek	364	212	92	2,055
Cherry Creek	---	---	51	1,090
Colorado Gulch	---	---	13	140
Cottonwood	---	---	220	875
Courier	56	50	---	---
Cove	659	628	---	---
Cow Creek	---	---	134	960
Crater	---	---	361	1,300
Croy Creek	960	440	336	1,515
Deer Creek (SV)	296	55	---	---
Deer Creek (NC)	352	223	---	---
Dry Creek	2,224	696	---	---
Ear Creek	345	78	---	---
East Fork	284	143	285	815
Elk Creek	180	162	---	---
Elk Mountain	255	85	---	---
Elkhorn	12	6	170	1,040
Fairfield	59	41	---	---
Flat Top Sheep Co.	1,970	711	379	1,680
Fork 3/	---	---	---	---
H & S	29	166	---	---
Hailey Creek	---	---	99	1,080
Hatty Creek	---	---	11	235 4/
Homestead	6	6 4/	---	---
Hot Springs	87	155	---	---
Hyndman	32	59	---	---
Indian Creek	423	172	212	515
Iron Mine	---	---	776	1,890
Kent Canyon	243	354	47	482
Lake Creek	---	---	5	750
Lava Lake	741	361	---	---
Little Beaver	112	25	294	2,250
Little Fish Creek	195	265	---	---
Little Rock Creek	41	44	---	---
Little Wood	---	---	382	1,460
Lower Rock Creek	511	168	36	770

TABLE 3-12 (cont.)

CURRENT LIVESTOCK GRAZING USE IN THE SVPA

Allotment Name	Cattle 1/		Sheep 1/	
	AUMs	Animals	AUMs	Animals 2/
Martin Canyon	---	---	131	760
McAtee	7	1	---	---
McFarland	90	113	---	---
McHan Creek	64	229	---	---
Mill Canyon	37	64	---	---
Mountain View	30	49	---	---
Muldoon	317	174	600	2,040
Muldoon Canyon	260	108	89	805
North 40	---	---	24	35 4/
Phillips Creek	26	28	---	---
Piney	57	61	---	---
Poison Creek	600	198	50	1,410
Poverty Flat	0	0	---	---
Powell Creek	25	44	---	---
Queens Crown	339	148	---	---
Quigley	---	---	453	1,360
Red Elephant	7	6	79	870
Road Canyon	379	215	---	---
Roanhide	---	---	24	95
Rocky Bar	120	198	3	130
Rota Run	---	---	27	580
Rough Creek	442	574	---	---
Scattered Tracts	47	50 4/	---	---
Severe	0	0	---	---
Shale	105	46	---	---
Sheep Creek	---	---	321	1,345
Sheep Point	91	130	---	---
Sheep Trail 3/	---	---	20	Trail
Shirley	30	32 4/	---	---
Silver Creek	196	70	---	---
Simpson	---	---	0	0
Slaughterhouse	---	---	290	1,230
Soldier	---	---	24	1,715
Southeast Fork	---	---	100	540
South 120	---	---	40	35 4/
Spring Creek	75	58	14	600
Square Mountain	29	15	---	---
Stocking	54	83	72	550
Telfer	8	69	8	340
Three Mile	19	204	---	---
Timber Butte	501	253	---	---
Timber Gulch	---	---	48	560
Trail Creek	303	247	23	660
Upper Fish Creek	---	---	53	915

TABLE 3-12 (cont.)

CURRENT LIVESTOCK GRAZING USE IN THE SVPA

Allotment Name	Cattle 1/		Sheep 1/	
	AUMs	Animals	AUMs	Animals 2/
Upper Rock Creek	---	---	188	590
Upper Slaughterhouse	---	---	36	1,000
Water Gulch	---	---	112	600
West Bellevue	327	74	283	1,075
West Fork Fish Creek	26	82	56	2,350
Willow Creek	71	334	---	---
Wolftone	---	---	4	85
Woodbury	119	128	---	---
TOTAL	15,751	10,235	7,316	45,492

1/ Dashes (---) indicate that no grazing preference exists for a kind of livestock; zeroes (0) indicate that preference exists, but no actual use has occurred.
2/ These numbers are averages, not necessarily the number actually grazing the allotment.
3/ These are new allotments.
4/ Season and numbers are not restricted in these allotments.

SOCIAL VALUES AND ATTITUDES

Conflicts related to public land and grazing management are common. Existing resource allocations are favorably viewed by members of the community whose economic livelihood and security are derived from cattle or ranching operations, but are seen as potentially harmful by those whose primary interests are aesthetics or recreation. These kinds of conflicts are likely to become more intense in the SVPA as it continues to grow in popularity as a recreation area.

The way a person perceives his/her social situation is a reality to that individual. This perception, if positive, provides a sense of social well-being. For example, living on a ranch provides a sense of social well-being for a person who enjoys it, but a feeling of isolation for one who does not. Both perceptions of the same process are a reality to the individual involved, even though they are opposites.

A person's economic situation also effects his sense of social well-being. There are two distinct groups in the study area whose social well-being is affected differently by their economic situation: (1) those who derive their livelihood from ranch-related activities, and (2) those who do not. The attitudes of individuals whose economic situation can be substantially changed by BLM decisions are understandably uneasy and do not have strong feelings of well-being.

A ranching lifestyle has been described as one which helps very few people become rich but is a family-oriented lifestyle that provides a good quality of life for those who choose it. With high expenses and low beef prices in the 1970s, ranchers have been subjected to economic and social pressures that have threatened this way of life.

Economist Schultz (1970) found that the majority of western livestock operators interviewed considered ranching as a way of life before they evaluated it as a profit-making enterprise. Further, it was felt that rural living was superior in virtually every respect to living in an urban area. The ranchers in the Schultz study felt that ranching is virtually the only remaining industry free of government intervention. As a group, they desired no Federal subsidies. In addition, 95 percent also felt they possessed particular qualities that set them apart from other occupational groups, and that these qualities were essential to securing social acceptance among other ranchers. Examples of these qualities are: honesty, hospitality, and respect for the rights of others.

Unstructured interviews were conducted within the SVPA to identify attitudes and values that may be affected by BLM actions. The 137 respondents represented mining, ranching, recreation, wildlife, local business, local elected officials, as well as State and Federal officials and agencies.

The ranchers interviewed in the SVPA displayed many of the qualities found by Schultz. They are concerned about their ability to continue their way of life in the face of inflation, complex technology, and governmental regulations. Eighty two percent of all persons contacted felt that something should be done to maintain and protect the ranching way of life. Beyond this concern, the respondents felt that a high quality of life is enjoyed by those living in and using the SVPA.

ECONOMICS

Introduction

Three counties (Blaine, Camas, and Gooding) have been established as the base area or region to be studied in the economics portion of this EIS.

These were chosen because (1) they contain the majority of the SVPA and (2) 87 percent of the permittees reside (and presumably trade) in them. Counties in which permittees reside that were not included in the economic region are Ada, Cassia, Jerome, Lincoln, and Twin Falls. These counties were not included because: (1) their involvement is limited to one or two permittees each, and (2) their inclusion would distort the base data and make it difficult to identify the real impacts to the selected counties.

The livestock industry would be most affected by future grazing management on public lands. According to the 1974 Census of Agriculture (U.S. Bureau of Census, 1977) there are 120,000 cattle and 93,000 sheep in the three-county area with annual feed requirements of 1.7 million animal unit months (AUMs). Permittees in the SVPA own approximately 37,000 cattle and 69,000 sheep (including those not grazing on public land) with feed requirements of 610,000 AUMs. This is 36 percent of the three-county total needs. Approximately 75 percent of all sheep in the region utilize BLM permits at one time or another. The SVPA has a total active preference of 36,504 AUMs, which is 6 percent of the permittees' needs. The average actual use is 23,067 AUMs, which is 63 percent of active preference and 4 percent of the permittees' total needs. During those months when BLM AUMs are being used (generally late spring to early fall), 8 percent of permittee needs are supplied by BLM, although the range varies from 1 to 100 percent.

Income

Total regional income was about $96 million in 1978. This is an 11 percent growth in real money terms (after adjusting for inflation) since 1974. Nonfarm industries accounted for 86 percent of the 1978 regional income. Nonfarm regional income has grown by 35 percent since 1974. Since 1974 statewide total income is up 14 percent, and nonfarm income is up 29 percent. The dominant nonfarm industries in the region are retail trade, services, construction, and government (Bureau of Economic Analysis 1980).

Total farm income in the region was $13 million in 1978. This is a 47 percent decline in income (in real money terms) since 1974. Statewide farm income declined 46 percent from 1974 to 1978. Farm income accounted for roughly 14 percent of the total regional income. This makes the farm sector the fourth largest industry in the region behind retail trade, services, and government (all approximately 15 percent of the total).

Total livestock income in the region was approximately $7 million in 1978, based on the assumption that the relationship between farm and livestock income is approximately the same as the relationship between farm and livestock receipts. During the six years between 1972 and 1977 livestock receipts averaged 54 percent of total farm receipts.

To determine the impacts of the proposed action and alternatives on rancher income, ranch budgets were developed. These budgets were prepared by the Economics, Statistics, and Cooperatives Service of the USDA in consultation with permittees in the SVPA. Budgets were prepared by herd-size groupings: four for cattle operators and three for sheep operators (Table 3-13). The entire budgets are included in Appendix 9. Table 3-13 shows that income generated by the permittees' ranches is approximately $1.9 million (prior to accounting for returns to investment on land). This represents 27 percent of the region's livestock income, 15 percent of the farm income, and 2 percent of the total personal income.

TABLE 3-13

RANCH BUDGETING RESULTS

Group	Number of Permittees	Returns Above Cash Costs	Total Income
CATTLE			
0-99	26	$ 4,277	$ 111,202
100-299	26	15,563	404,638
300-999	10	26,511	265,110
1000 +	9	42,308	380,772
Subtotal	71	--	1,161,722
SHEEP			
0-2499	11	$ 29,531	$ 324,841
2500-4999	4	31,525	126,100
5000 +	5	55,912	279,560
Subtotal	20	--	730,501
Total	83 1/	--	$1,892,223

1/ Eight permittees have both cattle and sheep preference.

SOURCE: Economics, Statistics, and Cooperatives Service, USDA, Fort Collins, Colorado, 1980.

Employment

Total regional employment was 11,444 in 1978. Agriculture was the largest employer, with farm proprietors and wage and salary workers accounting for 20 percent of total employment. Services, government, and

retail trade are the next largest employers (Bureau of Economic Analysis 1980). Total employment has risen 23 percent since 1974, while farm employment has risen 6 percent. This compares with statewide increases of 20 and 5 percent respectively. That portion of farm employment attributable to the livestock industry is not identifiable.

Ranch Consolidation and Conversion

The amount of ranch consolidation and conversion taking place in the region varies from county to county. In Camas County there has been a slow trend to larger ranches through consolidation. This occurs primarily through the sale of ranches to other local ranchers as a result of death or retirement. There does not seem to be a great market for converting ranches into subdivision-type developments, except possibly in the vicinity of the Soldier Mountain Ski Area (Gill, personal communication 1980). In Blaine County there has not been much ranch subdivision except north of Bellevue, which is zoned residential and where pronounced change has occurred. Little ranch consolidation has occurred in this county because local ranchers cannot compete with the prices developers are able to pay for land (Slette, personal communication 1980). In Gooding County some development has occurred on land that was formerly farm or ranch land. Most of this development has been normal growth due to increased population. Subdivision-type development and/or ranch consolidation do not appear to be happening any more rapidly in this county than elsewhere in the state (Koester, personal communication 1980).

Capital Position

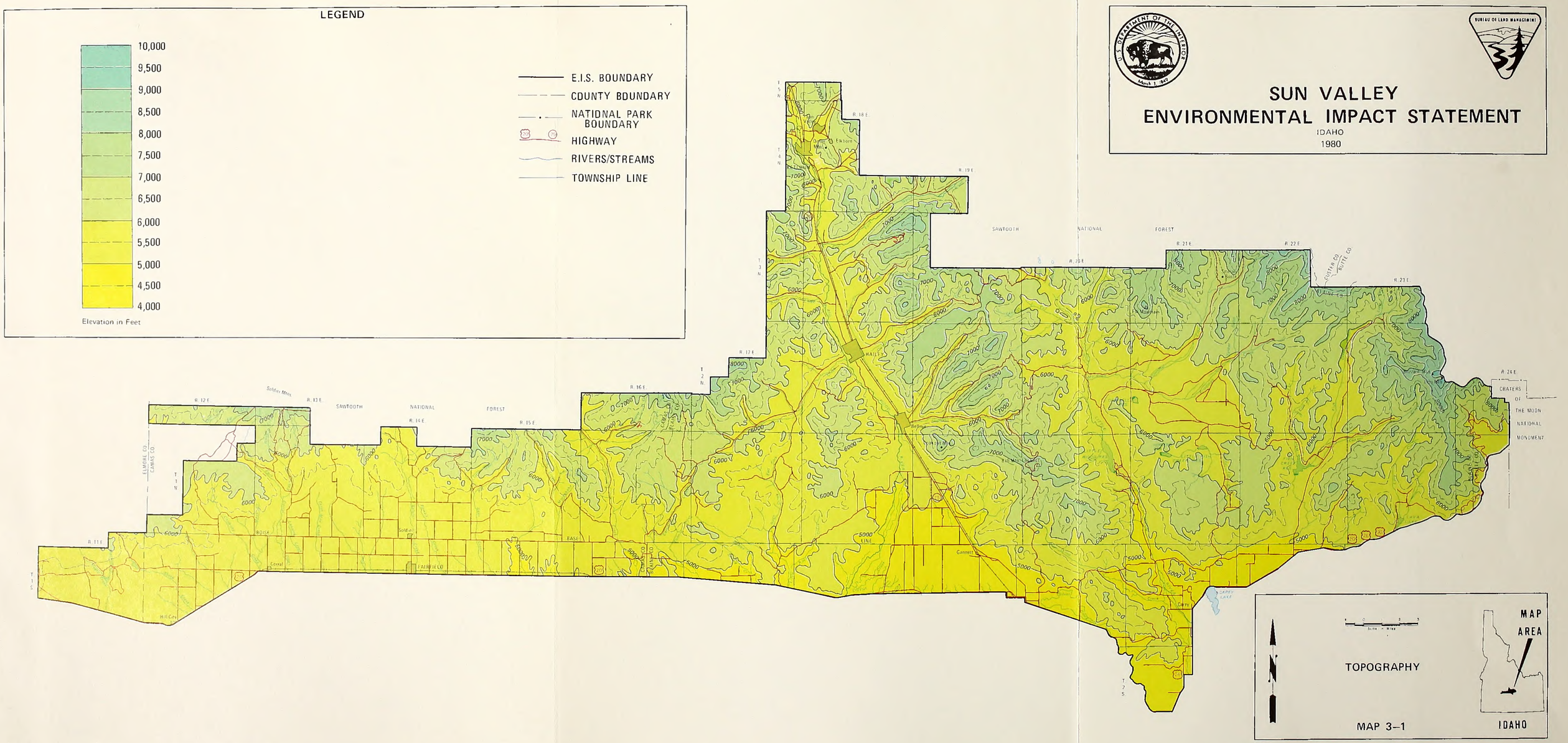
As early as 1925, it was recognized that the annual value of the Federal grazing privilege was being capitalized into rancher property. "It is argued that long use of the range in connection with the early settlement of agricultural lands has resulted in capitalizing the values of public pasturage as part of the value of the ranch . . ." (USDA 1925).

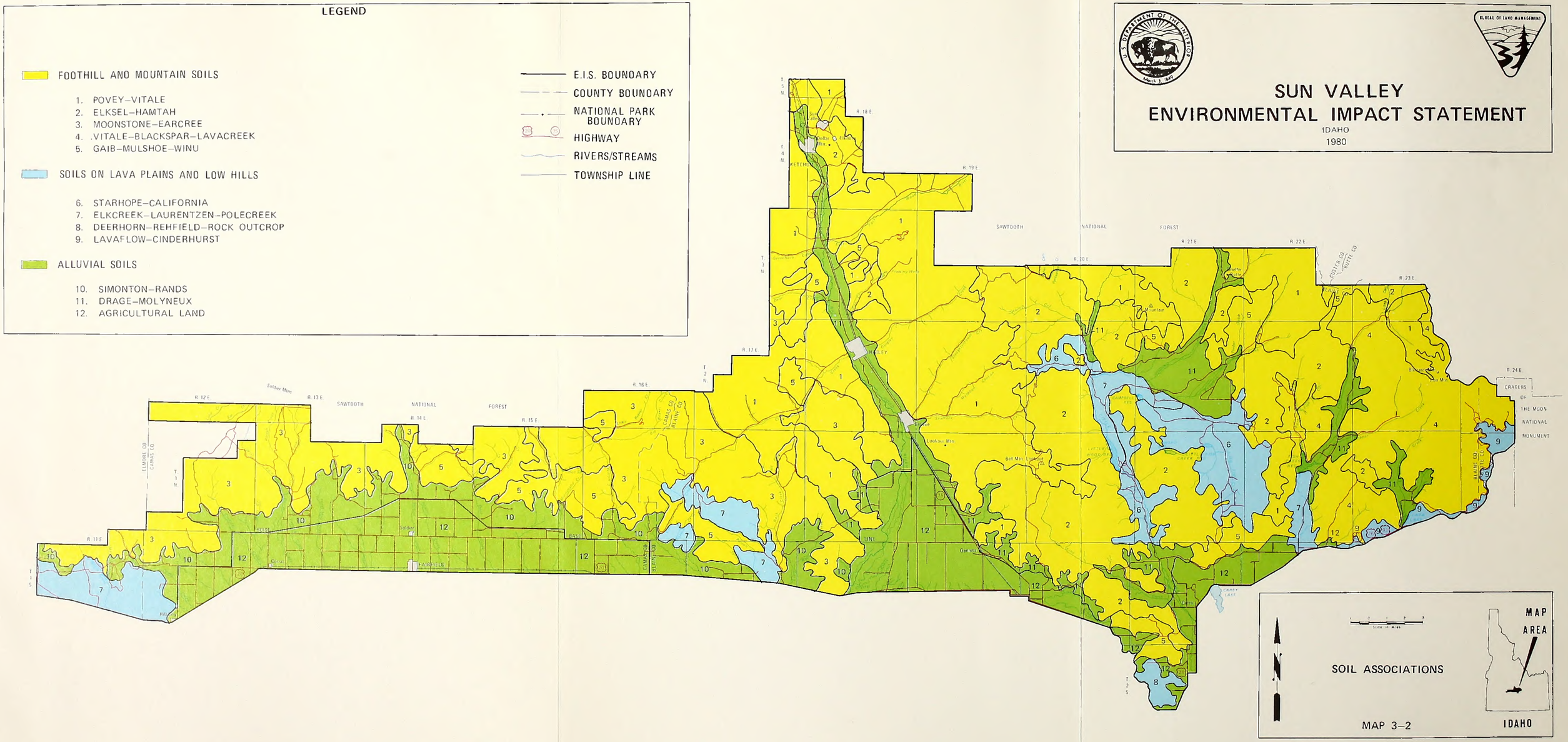
A report published by the Utah State University Experiment Station stated:

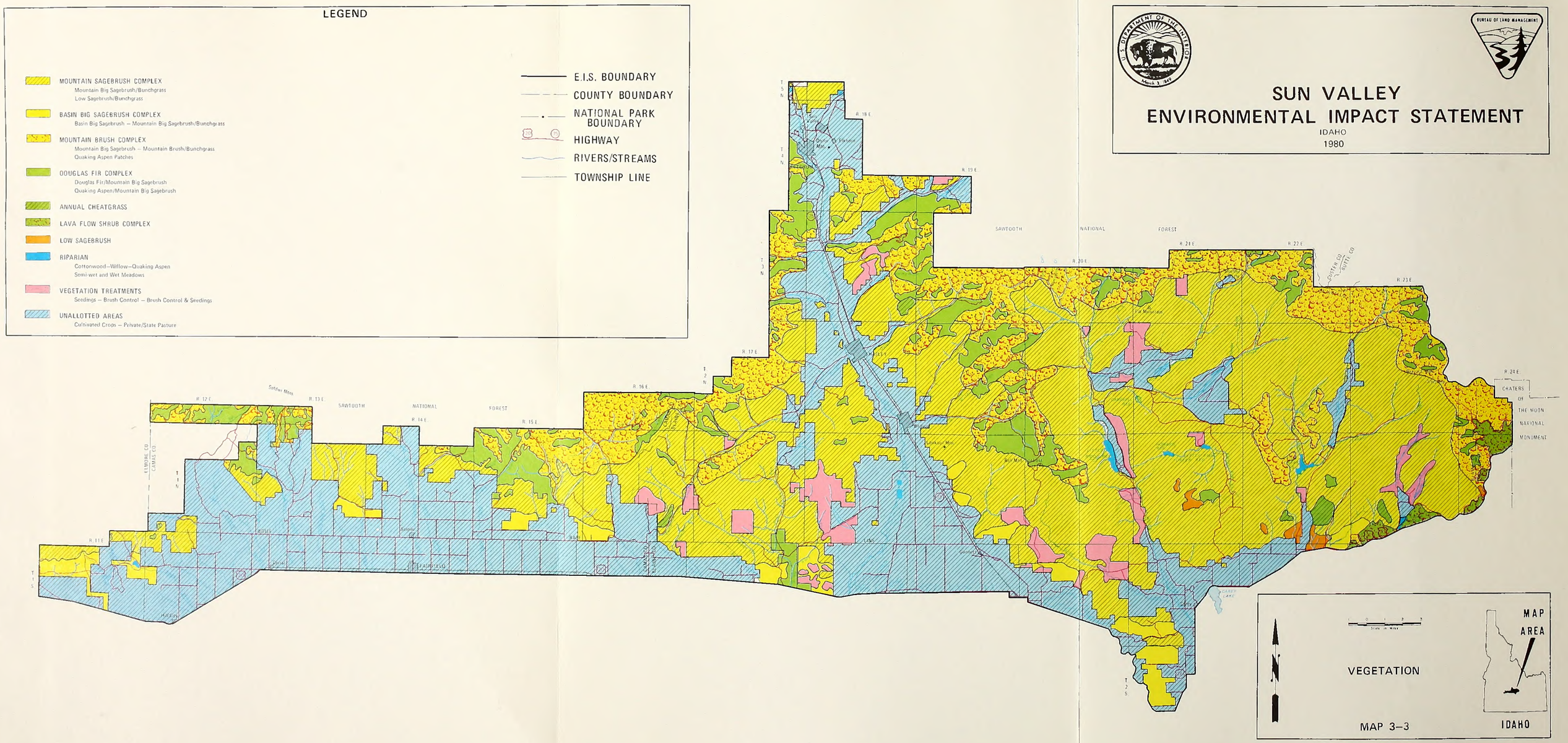
> . . . there was nothing illegal or unethical in the fact that grazing permits took on a value; ranchers just reacted to an economic situation that was created by government policy. Permit values rose because ranchers who had grazing permits were capturing economic rents in the form of low cost grazing; i.e., the grazing fee and recognized non-fee costs did not equal the value

of the grazing to ranchers. Thus, the authorization to use the federal lands and the associated economic rents were capitalized into rancher-owned assets. This value could show up either as a permit value or as an increased value of the commensurate property (Nielson and Workman 1971).

Although the BLM does not recognize this capitalized value of grazing permits, it is known that permits have sold at prices ranging from $25 to $55 per AUM in southern Idaho (Federal Land Bank 1979, Production Credit Association 1979, personal communication).


LEGEND
10,000
9,500
9,000
8,500
8,000
7,500
7,000
6,500
6,000
5,500
5,000
4,500
4,000
Elevation in Feet
E.I.S. BOUNDARY
COUNTY BOUNDARY
NATIONAL PARK BOUNDARY
HIGHWAY
RIVERS/STREAMS
TOWNSHIP LINE
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
SUN VALLEY
ENVIRONMENTAL IMPACT STATEMENT
IDAHO
1980
SAWTOOTH NATIONAL FOREST
CRATERS OF THE MOON NATIONAL MONUMENT
BLAINE CO
CAMAS CO
ELMORE CO
BUTTE CO
CUSTER CO
LINCOLN CO
GOODING CO
JEROME CO
TWIN FALLS CO
CASSIA CO
POWER CO
OWYHEE CO
ELMORE
BOISE
BASE
FAIRFIELD
HAILEY
BELLEVUE
KETCHUM
SUN VALLEY
GANNETT
CAREY
Soldier Mtn.
Timmerman Hill
Big Wood River
Silver Creek
Camas Creek
Little Wood River
Big Lost River
Little Lost River
Birch Creek
Pioneer Mtns.
Lost River Range
Lemhi Range
Beaverhead Mtns.
Big Southern Butte
Craters of the Moon
Arco Desert
Mackay Reservoir
Antelope Reservoir
Magic Reservoir
Carey Lake
5000 LINE
TOPOGRAPHY
MAP 3–1
MAP AREA
IDAHO


LEGEND
FOOTHILL AND MOUNTAIN SOILS
1. POVEY–VITALE
2. ELKSEL–HAMTAH
3. MOONSTONE–EARCREE
4. VITALE–BLACKSPAR–LAVACREEK
5. GAIB–MULSHOE–WINU
SOILS ON LAVA PLAINS AND LOW HILLS
6. STARHOPE–CALIFORNIA
7. ELKCREEK–LAURENTZEN–POLECREEK
8. DEERHORN–REHFIELD–ROCK OUTCROP
9. LAVAFLOW–CINDERHURST
ALLUVIAL SOILS
10. SIMONTON–RANDS
11. DRAGE–MOLYNEUX
12. AGRICULTURAL LAND
E.I.S. BOUNDARY
COUNTY BOUNDARY
NATIONAL PARK BOUNDARY
HIGHWAY
RIVERS/STREAMS
TOWNSHIP LINE
SUN VALLEY
ENVIRONMENTAL IMPACT STATEMENT
IDAHO
1980
SOIL ASSOCIATIONS
MAP 3–2
MAP AREA
IDAHO

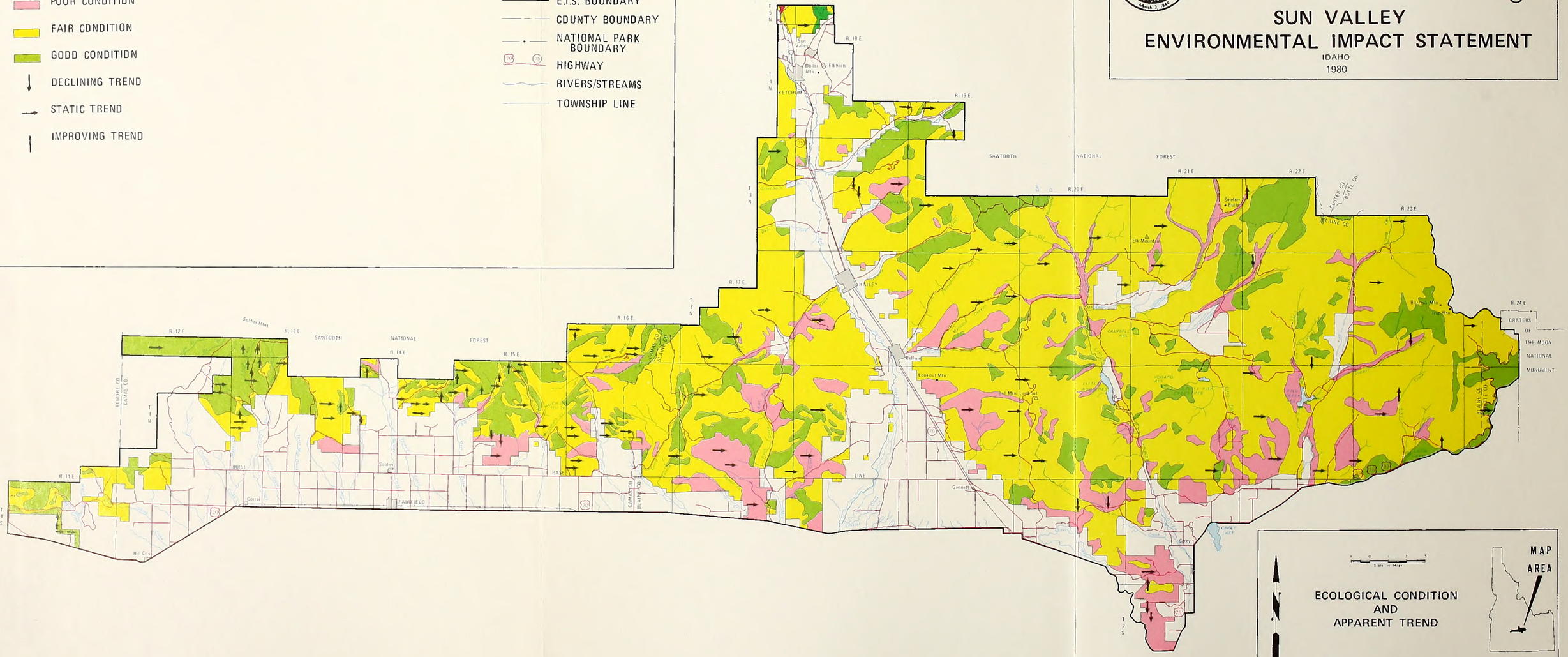

LEGEND
MOUNTAIN SAGEBRUSH COMPLEX
Mountain Big Sagebrush/Bunchgrass
Low Sagebrush/Bunchgrass
BASIN BIG SAGEBRUSH COMPLEX
Basin Big Sagebrush – Mountain Big Sagebrush/Bunchgrass
MOUNTAIN BRUSH COMPLEX
Mountain Big Sagebrush – Mountain Brush/Bunchgrass
Quaking Aspen Patches
DOUGLAS FIR COMPLEX
Douglas Fir/Mountain Big Sagebrush
Quaking Aspen/Mountain Big Sagebrush
ANNUAL CHEATGRASS
LAVA FLOW SHRUB COMPLEX
LOW SAGEBRUSH
RIPARIAN
Cottonwood–Willow–Quaking Aspen
Semi-wet and Wet Meadows
VEGETATION TREATMENTS
Seedings – Brush Control – Brush Control & Seedings
UNALLOTTED AREAS
Cultivated Crops – Private/State Pasture
E.I.S. BOUNDARY
COUNTY BOUNDARY
NATIONAL PARK BOUNDARY
HIGHWAY
RIVERS/STREAMS
TOWNSHIP LINE
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
SUN VALLEY
ENVIRONMENTAL IMPACT STATEMENT
IDAHO
1980
SAWTOOTH NATIONAL FOREST
Sawtooth Mtns
Smiley Mtns
Dollar Mtn
Starkey Mtn
Bell Mountain
Fox Mountain
Boulder Mtns
Cedar Draw
Carey Lake
ELMORE CO
CAMAS CO
BLAINE CO
CUSTER CO
BUTTE CO
LINCOLN CO
GOODING CO
CHATERS OF THE MOON NATIONAL MONUMENT
R. 11 E
R. 12 E
R. 13 E
R. 14 E
R. 15 E
R. 16 E
R. 17 E
R. 18 E
R. 19 E
R. 20 E
R. 21 E
R. 22 E
R. 23 E
R. 24 E
T. 5 N
T. 4 N
T. 3 N
T. 2 N
T. 1 N
T. 1 S
T. 2 S
VEGETATION
MAP 3–3
MAP AREA
IDAHO

SUN VALLEY
ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1980

LEGEND

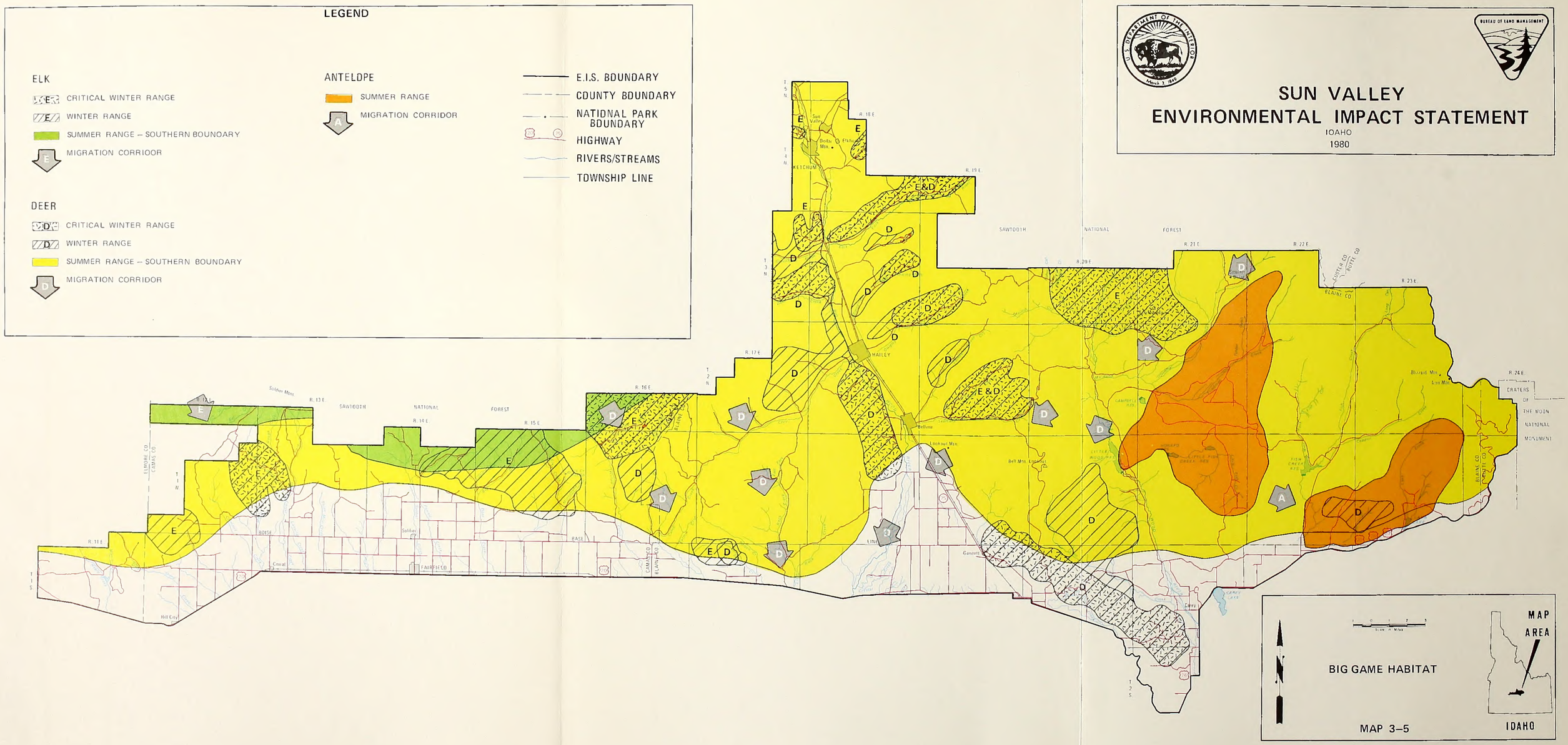
- POOR CONDITION
- FAIR CONDITION
- GOOD CONDITION
- DECLINING TREND
- STATIC TREND
- IMPROVING TREND
- E.I.S. BOUNDARY
- COUNTY BOUNDARY
- NATIONAL PARK BOUNDARY
- HIGHWAY
- RIVERS/STREAMS
- TOWNSHIP LINE

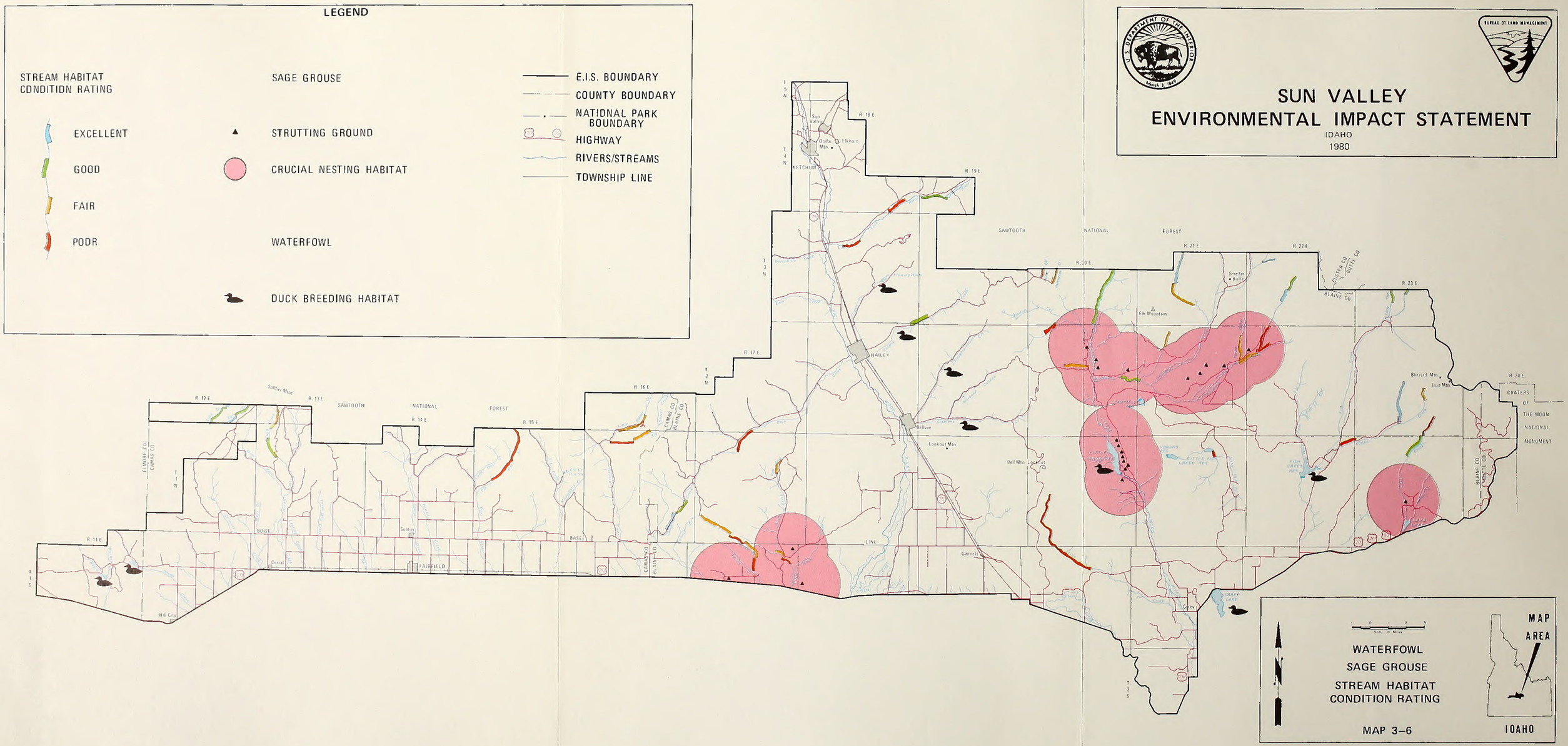


ECOLOGICAL CONDITION
AND
APPARENT TREND

MAP 3–4

MAP AREA
IDAHO


LEGEND
ELK
CRITICAL WINTER RANGE
WINTER RANGE
SUMMER RANGE – SOUTHERN BOUNDARY
MIGRATION CORRIOOR
DEER
CRITICAL WINTER RANGE
WINTER RANGE
SUMMER RANGE – SOUTHERN BOUNDARY
MIGRATION CORRIDOR
ANTELOPE
SUMMER RANGE
MIGRATION CORRIDOR
E.I.S. BOUNDARY
COUNTY BOUNDARY
NATIONAL PARK BOUNDARY
HIGHWAY
RIVERS/STREAMS
TOWNSHIP LINE
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
SUN VALLEY
ENVIRONMENTAL IMPACT STATEMENT
IDAHO
1980
SAWTOOTH NATIONAL FOREST
SUN VALLEY
KETCHUM
HAILEY
BELLEVUE
FAIRFIELD
CAMAS CO
ELMORE CO
BLAINE CO
CUSTER CO
BUTTE CO
LINCOLN CO
CRATERS OF THE MOON NATIONAL MONUMENT
BIG GAME HABITAT
MAP AREA
IDAHO
MAP 3–5


LEGEND
STREAM HABITAT CONDITION RATING
EXCELLENT
GOOD
FAIR
POOR
SAGE GROUSE
STRUTTING GROUND
CRUCIAL NESTING HABITAT
WATERFOWL
DUCK BREEDING HABITAT
E.I.S. BOUNDARY
COUNTY BOUNDARY
NATIONAL PARK BOUNDARY
HIGHWAY
RIVERS/STREAMS
TOWNSHIP LINE
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
SUN VALLEY
ENVIRONMENTAL IMPACT STATEMENT
IDAHO
1980
SAWTOOTH NATIONAL FOREST
CRATERS OF THE MOON NATIONAL MONUMENT
KETCHUM
HAILEY
BELLEVUE
GANNETT
CAREY
HILL CITY
SOLDIER MTNS
ELMORE CO
CAMAS CO
BLAINE CO
BOISE CO
GOODING CO
CUSTER CO
LINCOLN CO
WATERFOWL
SAGE GROUSE
STREAM HABITAT CONDITION RATING
MAP 3-6
MAP AREA
IDAHO

SUN VALLEY
ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1980

LEGEND

CLASS I. This class provides primarily for natural ecological changes. It is applied to Wilderness Study Areas, which could be added to the National Wilderness Preservation System. If the areas are dropped from wilderness consideration, the Visual Resource Class could change. The Class I areas are also potential Areas of Critical Environmental Concern.

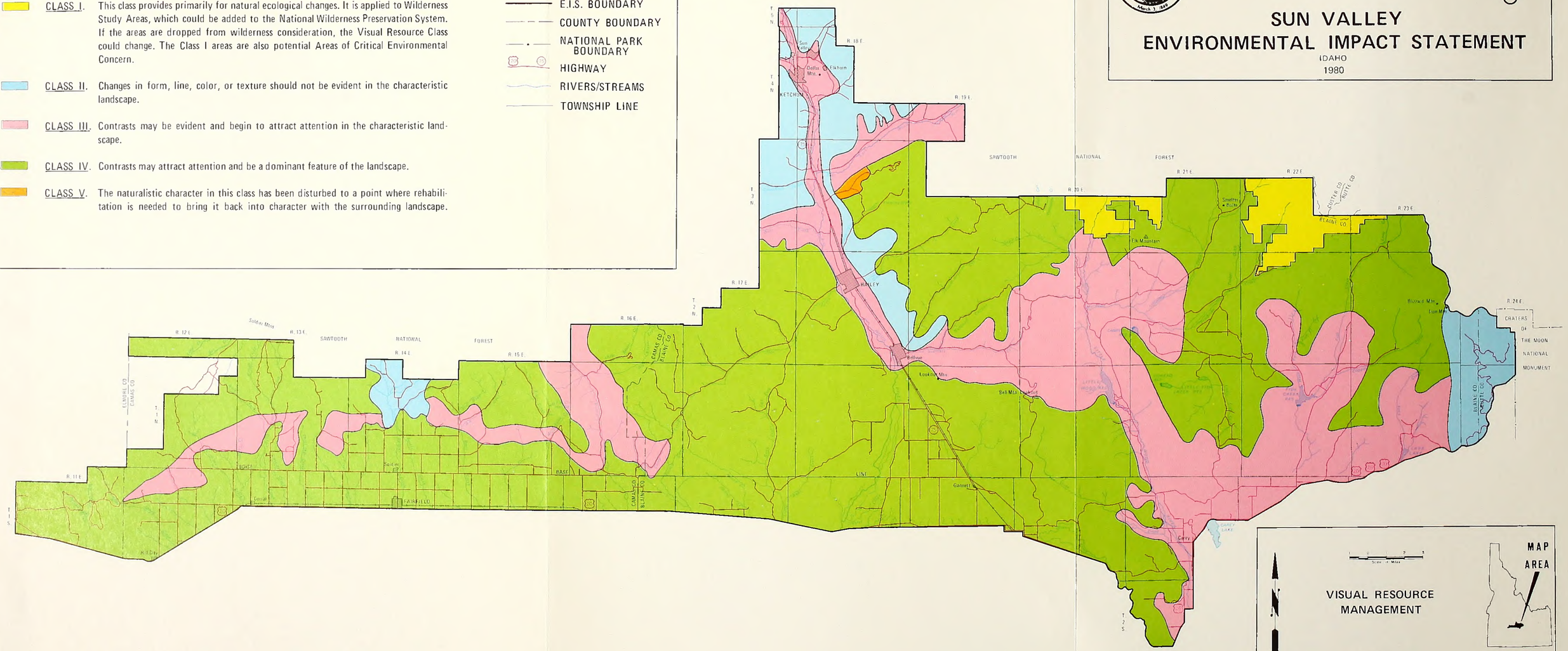
CLASS II. Changes in form, line, color, or texture should not be evident in the characteristic landscape.

CLASS III. Contrasts may be evident and begin to attract attention in the characteristic landscape.

CLASS IV. Contrasts may attract attention and be a dominant feature of the landscape.

CLASS V. The naturalistic character in this class has been disturbed to a point where rehabilitation is needed to bring it back into character with the surrounding landscape.

- E.I.S. BOUNDARY
- COUNTY BOUNDARY
- NATIONAL PARK BOUNDARY
- HIGHWAY
- RIVERS/STREAMS
- TOWNSHIP LINE



VISUAL RESOURCE MANAGEMENT

MAP 3–7

MAP AREA

IDAHO

CHAPTER 4

Environmental Consequences

4

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

ASSUMPTIONS AND ANALYSIS GUIDELINES

Environmental consequences of the proposed action and alternatives have been analyzed using the following general assumptions:

1. Implementation would occur over the five-year period following completion and approval of the final environmental impact statement.

2. The BLM would fund the improvements required to implement the selected management and would do so within the stated time frame. Money and/or labor would be accepted from permittees through cooperative agreements.

3. The manpower necessary for timely implementation would be furnished by the BLM and the recommended studies and evaluation procedures would be accomplished.

4. If the proposed action, the No Grazing alternative, or the Lower Stocking alternative were implemented, big game populations would increase to the long-term (1990) projections made by the Idaho Department of Fish and Game and BLM, and sufficent forage would be provided for the projected populations.

5. Both proposed and existing improvements would be maintained in serviceable condition.

6. The actual stocking rate following implementation would be equivalent to the rate proposed for the selected alternative, i.e., nonuse would not be taken.

Analyses of direct and indirect (usually off-site) impacts are based on the following sources of change:

1. Forage allocation: adjustment of stocking rates to coincide with livestock grazing capacities and to provide for the needs of other resources.

2. Seasons of Use: designation of the period of time during each year when an allotment may be grazed.

3. Grazing systems: conversion to, or continuation of, rest rotation, deferred rotation, deferred use, and seasonal grazing as defined in the Glossary, including consideration of the kind of livestock (sheep or cattle) to be grazed.

4. Range improvements: construction of grazing management facilities and completion of land treatments.

5. Protection: elimination of livestock grazing or continuation of no grazing on unallotted areas.

SOILS

Consequences of the Proposed Action

Implementation of the proposed action would have a slightly adverse impact on soils by reducing cover and increasing erosion on localized areas. The estimated future erosion rate for the entire SVPA would be 5.3 tons/acre/year. This represents a 1.2 percent increase from the present erosion rate of 5.2 tons/acre/year. Anticipated soil erosion rates were calculated using the Musgrave Equation (see Appendix 3) in conjunction with estimated changes in vegetation production and their associated cover factors and estimated changes in compaction. Comparisons of short- and long-term soil disturbances due to range improvements in the proposed action and alternatives are shown in Table 4-1. Cumulative short- and long-term erosion rates are shown in Tables 4-2 and 4-3, respectively. Projected erosion rates due to changes in forage allocation and vegetation production are given by allotment and alternative in Appendix 3 (Table A3-3).

Short Term

Forage allocation would have a generally adverse effect on soils by reducing cover and increasing erosion by about 3.3 percent (0.17 tons/acre/year). The overall 30 percent increase in livestock grazing would cause a 2 percent decrease in cover for watershed protection.

Generally, construction of all management facilities would adversely affect soils on 63.5 acres (Table 4-1) due to compaction and a decline in vegetation cover. Erosion rates would increase about 230 percent (12 tons/acre/year).

TABLE 4-1

EXPECTED SHORT-TERM AND LONG-TERM SOIL
DISTURBANCE FROM PROPOSED RANGE IMPROVEMENTS 1/

Range Improvements	Total Acres Disturbed					
	Proposed Action		Lower Stocking		Greater Production	
	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term
Grazing Management Facilities 2/		3/		4/		5/
Water Developments	35.8	561.0	30.6	268.9	36.8	1,041.2
Fences	27.7	4.6	19.4	3.3	28.7	4.8
Subtotal	63.5	565.6	50.0	272.2	65.5	1,046.0
Land Treatments						
Brush Control	19,390	-	-	-	160,773	-
Brush Control/Seeding	4,520	-	-	-	6,576	-
Seeding	75	-	-	-	1,027	-
Subtotal	23,985	-	-	-	168,376	-
Total (rounded)	24,049	566	50	272	168,442	1,046

1/ Only those alternatives with proposed range improvements are listed.

2/ Short-term disturbances are based on one acre per reservoir, 0.01 acre per spring, well or cattleguard, 1.5 acres per mile of pipeline, 1.21 acres per mile of fence and one acre per each acre of land treatment. Long-term disturbances are based on 0.7 acres per reservoir, 0.01 acres per spring, well or cattleguard, 0.1 acres per mile of pipeline, and 0.2 acres per mile of fence, plus the denuded and overutilized acres described in footnotes 3/, 4/, and 5/.

3/ Includes 3.5 acres of 50 to 100 percent utilization of vegetation cover and .5 acres of denuded area around each water development.

4/ Includes 2 acres of 50 to 100 percent utlization of vegetation cover and .3 acres of denuded areas around each water development.

5/ Includes 6.6 acres of 50 to 100 percent utilization of vegetation cover and .8 acres of denuded area around each water development.

TABLE 4-2

CUMULATIVE SHORT-TERM CHANGES IN EROSION AND
ESTIMATED SHORT-TERM EROSION RATES 1/
UNDER THE VARIOUS ALTERNATIVES

Cause	Present	Proposed Action		Alternative 1 No Change		Alternative 2 No Grazing		Alternative 3 Lower Stocking		Alternative 4 Greater Production	
		T/Ac/Yr	Percent	T/Ac/Yr	Percent	T/Ac/Yr	Percent	T/Ac/Yr	Percent	T/Ac/Yr	Percent
Stocking Level	—	+0.17	+3.3	---	—	-0.66	-13	-0.12	-2.3	+0.43	+8.2
Management Facilities	---	+0.0032	+0.062	—	—	---	—	+0.0026	+0.049	+0.0034	+0.064
Land Treatments	---	+0.32	+6.1	—	—	---	—	—	—	+2.1	+41
Total Change	---	+0.49	+9.5	---	—	-0.66	-13	-0.12	-2.3	+2.5	+49
Estimated Short-Term Erosion Rate	5.2	5.7		5.2		4.6		5.1		7.7	

1/ Erosion rates and changes in erosion are presented in tons per acre per year (T/Ac/Yr).

TABLE 4-3

CUMULATIVE LONG-TERM CHANGES IN EROSION AND
ESTIMATEO LONG-TERM EROSION RATES 1/
UNDER THE VARIOUS ALTERNATIVES

Cause	Present	Proposed Action		Alternative 1 No Change		Alternative 2 No Grazing		Alternative 3 Lower Stocking		Alternative 4 Greater Production	
		T/Ac/Yr	Percent	T/Ac/Yr	Percent	T/Ac/Yr	Percent	T/Ac/Yr	Percent	T/Ac/Yr	Percent
Stocking Level	—	+0.17	+3.3	---	---	-0.66	-13	-0.12	-2.3	+0.43	+8.2
Chsnges In Production	---	-0.16	-3.1	+0.03	+0.57	-0.38	-7.3	-0.17	-3.2	-0.19	-3.6
Management Facilities	---	+0.026	+0.5	---	---	---	---	+0.012	+0.23	+0.05	+0.96
Land Treatments	—	+0.024	+0.46	---	---	---	---	---	---	+0.16	+3.0
Concentration Areas	---	+0.012	+0.23	---	---	-0.18	-3.4	-0.038	-0.72	+0.03	+0.62
Total Change	---	+0.072	+1.2	+0.03	+0.57	-1.2	-24	-0.32	-6.0	+0.48	+9.2
Estimated Long-Term Erosion Rate	5.2	5.3		5.2		4.0		4.9		5.7	

1/ Erosion rates snd changes in erosion are presented in tons per acre per year (T/Ac/Yr).

The proposed land treatments on 23,985 acres (Table 4-1) would have short-term adverse effects on soils that would decrease as revegetation proceeded. Cover on the 19,390 acres of brush control would be reduced by 25 percent and erosion would increase by 57 percent (3.0 tons/acre/year). A 260 percent (4.1 tons/acre/year) increase in erosion caused by a 78 percent decrease in cover would result from the proposed brush control and seeding on 4,520 acres. On the 75 acres proposed for seeding, cover would be reduced 80 percent and soil erosion would increase by 290 percent (5.3 tons/acre/year).

Long Term

Forage allocation would continue to have the same negative impacts on soils mentioned in the short-term analysis above, i.e., a 2 percent reduction in cover and a 3.3 percent (0.17 tons/acre/year) increase in erosion rates. An estimated 921 acres of additional livestock concentration areas would have a 66 percent reduction in cover and a 200 percent (3.2 tons/acre/year) increase in erosion.

The proposed grazing systems, seasons of use, kinds of livestock, and range improvements would generally have a long-term beneficial impact on soils by improving livestock distribution. Cover would be expected to increase by 1.9 percent and erosion would be reduced 3.1 percent (0.16 tons/acre/year).

In the long term 566 acres (Table 4-1) would be disturbed as a result of the physical presence of range improvements and the vegetation reduction caused by livestock concentrations. Livestock concentration areas (538 acres) would have a 225 percent (12 tons/acre/year) increase in erosion because of trampling, compaction, and reduced cover.

The short-term negative impacts from land treatments would be greatly reduced in the long term. There would be about a 92 percent decrease in erosion from the short-term erosion rates for all types of treatments.

Consequences of the No Change Alternative

Under the No Change alternative there would be no significant change in the impacts presently occurring on the soil resource for the entire SVPA. The average erosion rate would remain at about 5.2 tons/acre/year. On 19 allotments (38,771 acres) erosion would increase less than 5 percent (0.26 tons/acre/year) in the long term because of present overstocking.

Consequences of The No Grazing Alternative

Implementation of this alternative would have an overall beneficial impact on soils by improving cover, increasing soil productivity, and reducing erosion. Cover would increase by an estimated 12 percent and erosion rates would decrease an estimated 24 percent from a present rate of 5.2 tons/acre/year to 4.0 tons/acre/year.

Short Term

Forage allocation would generally have a beneficial effect on soils by improving cover, increasing productivity, and reducing erosion. By removing livestock, there would be a 6.6 percent increase in cover for watershed protection and nearly a 13 percent, or 0.66 tons/acre/year decrease in erosion.

Long Term

In the long term, forage allocation would have the same beneficial impacts on soils as in the short term, i.e., a 6.6 percent increase in cover and a 13 percent (0.66 tons/acre/year) decrease in erosion rates. In addition, an estimated 5,509 acres of livestock concentration area would improve considerably. Cover would increase by about 210 percent and erosion would decrease by about 76 percent (7.7 tons/acre/year).

Over the entire SVPA an estimated 5.8 percent increase in vegetation production would result in a 4.1 percent increase in cover and a 7.3 percent decrease in erosion (0.38 tons/acre/year).

Consequences of the Lower Stocking Alternative

Implementation of this alternative would have an overall beneficial impact on soils by improving cover, increasing soil productivity, and reducing erosion. Cover would increase by an estimated 3.6 percent and erosion rates would decrease an estimated 6.0 percent from a present rate of 5.2 tons/acre/year to 4.9 tons/acre/year.

Short Term

Forage allocation would generally have a beneficial effect on soils by improving cover and reducing erosion by 2.3 percent (0.12 tons/acre/year). There would be an overall 21 percent downward adjustment in livestock grazing and a 1.4 percent increase in cover.

Range improvements affecting soils under this alternative would be limited to grazing management facilities. Generally, construction activities (affecting 50 acres) would have an adverse impact on soils due to compaction and a decline in vegetation cover. Erosion rates would increase about 235 percent (12 tons/acre/year) on these areas.

Long Term

In the long term, forage allocation would have the same beneficial impacts on soils as in the short term, i.e., a 1.4 percent increase in cover and a 2.3 percent (0.12 tons/acre/year) reduction in erosion rates. In addition, an estimated 1,157 acres in livestock concentration areas would improve considerably. Cover would increase about 210 percent, and erosion would decrease by about 76 percent (7.7 tons/acre/year).

The proposed grazing systems, seasons of use, kinds of livestock, and range improvements would have an overall beneficial effect on soils by improving livestock distribution. Cover would be expected to increase by 2 percent and erosion would be reduced about 3.2 percent (0.17 tons/acre/year).

As a result of the physical presence of range improvements and the reduction in vegetation caused by livestock concentrations, 272 acres would be disturbed in the long term (Table 4-1). About 250 acres of livestock concentration areas would have about a 225 percent (12 tons/acre/year) increase in erosion because of trampling, compaction, and reduced cover.

Consequences of The Greater Production Alternative

Implementation of this alternative would have an overall adverse impact on soils in the SVPA by reducing cover and soil productivity and increasing erosion. Cover would be reduced 5.2 percent and erosion rates would increase an estimated 9.2 percent from a present rate of 5.2 tons/acre/year to 5.7 tons/acre/year.

Short Term

Forage allocation would generally have an adverse affect on soils by reducing cover and increasing erosion by 8.2 percent (0.43 tons/acre/year). There would be an overall 79 percent upward adjustment in livestock grazing and a 5.2 percent decrease in cover.

Generally, construction of all management facilities would have an adverse impact on 65.5 acres of soils due to compaction and a decline in vegetation cover. Erosion rates would increase about 230 percent (12 tons/acre/year).

The proposed land treatments on 168,376 acres would have short-term adverse impacts on soils that would decrease as revegetation proceeded. As noted in Table 4-1, 160,773 acres would be treated to control brush. Cover would be reduced by 25 percent and erosion would increase by 57 percent (3.0 tons/acre/year). A 260 percent (4.1 tons/acre/year) increase in erosion caused by a 78 percent decrease in cover would result from the proposed brush control and seeding on 6,576 acres. On the 1,027 acres proposed for seeding, cover would be reduced 80 percent and soil erosion would increase by 280 percent (5.3 tons/acre/year).

Long Term

Forage allocation would have the same negative impacts on soils as in the short term, i.e., a 5.2 percent reduction in cover for watershed protection and an 8.2 percent (0.43 tons/acre/year) increase in erosion rates. Also, an estimated additional 2,460 acres of livestock concentration would have a 66 percent reduction in cover and a 200 percent (3.2 tons/acre/year) increase in erosion.

The proposed grazing systems, seasons of use, kinds of livestock, and range improvements would generally have a beneficial impact on soils by improving livestock distribution. Cover would be expected to increase 2.3 percent and erosion would be reduced 3.6 percent (0.19 tons/acre/year).

A total of 1,046 acres would be disturbed in the long term (Table 4-1) as a result of the physical presence of range improvements, reduced vegetation, and increased compaction caused by livestock concentrations. Livestock concentration areas (1,018 acres) would have about a 225 percent (12 tons/acre/year) increase in erosion because of trampling, compaction, and a 59 percent loss of cover.

The negative impacts from land treatments would be greatly reduced in the long term. There would be about a 92 percent decrease in erosion from the short-term erosion rates for all types of land treatments.

Consequences of the Proposed Action

Water Yield

It is unlikely that the proposed action would have any significant impact on surface or ground-water yields. Several allotments (Baird, Big Beaver, Camp Creek, East Fork, Flat Top Sheep Co., Little Rock Creek, Muldoon Canyon, South East Fork, and Stocking) would have significant improvements in their ecological condition, thereby improving the upland watershed condition. The improvement in the watershed would not be expected to significantly increase water yield or reduce flooding, because the present vegetation appears adequate. Gifford and Hawkins (1978) showed that infiltration rates, which control runoff, are maximized at a low grazing intensity. Proposed stocking rates are in the moderate- to low-intensity range of value, as under existing conditions.

A total of 99 springs, 31 reservoirs, and 2 wells would be developed if the proposed action were implemented. It is estimated that these additional water sources would increase the consumptive water use from about 25 acre-feet/year to about 60 acre-feet/year due to increased livestock consumption (about 8 acre-feet), evaporation, and evapotranspiration. This increase would be considered negligible when comparing the proposed use to available water supply.

Sediment Yield

The most important impacts to a watershed involve the production of sediment. Although few sediment measurements are available, field observations (see Chapter 3, Table 3-3) have identified areas with apparent excessive sedimentation. This sedimentation impairs aquatic life, interferes with irrigation diversion, clogs pipelines, and is generally unesthetic. The sedimentation identified in the SVPA probably represents only a small portion of the problem.

Sediment yield is a complex phenomenon caused by both channel and upland contributions. Unstable stream banks can add significant amounts of sediment to a stream. The surrounding watersheds, if in an eroding condition, can also provide a constant source of soil material. In assessing

sediment yield it is necessary to evaluate both the stream bottom and the upland watershed. The topography in the SVPA is generally steep, causing livestock to concentrate in stream bottoms. Increases in livestock concentrations would adversely affect unprotected riparian areas. Sheep grazing is considered to be less destructive to stream bottoms than cattle grazing because sheep tend to instinctively graze the uplands and their use is more controlled because they are herded.

The proposed action would not be expected to significantly increase sediment yield in the SVPA, although several allotments could have sediment increases (Appendix 4, Table A4-1). The increases would result from higher livestock use and increased surface disturbance (such as brush control).

The proposed action includes about 24,000 acres of brush control projects to be implemented within a three-year period. The proposed treatments may occur on relatively steep slopes (exceeding 30 percent) and on soils that appear to be inherently unstable. In these areas, vegetation treatments could cause a reduction in vegetation cover and loss of the deep root system. In low-cohesive soils such as weathered granitics, the deep root systems of shrubs may be very important in reducing mass failure. Destruction of the root systems after treatment would not be immediate but would depend on the rate of decay and mechanical weathering. These types of impacts could be expected under worst-case conditions within a one- to five-year period following treatment.

More immediate erosional impacts could be expected on the treatment areas where extensive forb damage occurred. Surface erosional processes could be accelerated, resulting in gullying, removal of surface soil horizons, and long-term reduction in productivity. Proposed treatments in the Dry Creek and Little Rock Creek allotments would be expected to cause short-term increases in sediment yield of over 30 percent.

Overall Watershed Condition

Three allotments (Big Beaver, Dry Creek, and East Fork) would show significant improvement in overall watershed condition; one allotment (Sheep Creek) could show a significant reduction in overall watershed condition. These improvements and reductions would primarily result from changes in grazing intensity and would appear mainly as changes in the condition of the stream-riparian zones. The adverse changes could be insignificant because traditional sheep use indicates a low dependence on stream-riparian zones. See Table 4-4 at the end of this section for a summary of expected impacts on water resources from the proposed action and all alternatives. Appendix 4 provides further detail regarding impacts of land treatments on water resources.

Consequences of the No Change Alternative

This alternative calls for no change in existing grazing practices. It would not likely change conditions currently affecting water resources. Although no watershed trend information has been developed for the SVPA, it is expected that characteristics shown in Table 3-3 of Chapter 3 Water Resources would remain unchanged.

Consequences of the No Grazing Alternative

All impacts associated with this alternative would be beneficial to water resources. Soil loss and sediment yield would be reduced considerably on most allotments. Streambank conditions on 20 allotments would improve to a good or excellent condition while the others would remain in good or excellent condition. Overall watershed condition would significantly improve on 24 allotments while the others would remain in good or excellent condition.

Consumptive water use would be reduced by about 25 acre-feet per year, but this is considered insignificant when compared to the available water supply.

Consequences of the Lower Stocking Alternative

The Lower Stocking Alternative would have a limited impact on existing water resources. Proposed changes in livestock use would significantly improve general watershed conditions on eight allotments. Six allotments would be expected to show improvements in streambank condition, while two others would show declines. In general, livestock would still utilize the unprotected stream-riparian zones; minimal changes from present condition would be expected.

Water use would be reduced by a negligible amount of five acre-feet per year.

Consequences of the Greater Production Alternative

This alternative could have a devastating affect on water resources in the SVPA. Nineteen allotments would show significant declines in overall

watershed condition and no allotments would significantly improve. Higher grazing intensities would cause increases in soil loss and sedimentation because of decreased vegetation cover. Streambank condition would most seriously affect water resources.

Impacts resulting from proposed land treatments could be the most severe. For reasons discussed in assessing the proposed action, brush removal could irreversibly affect erosion rates, topographic appearance, and aesthetics. The amount of vegetation disturbance would considerably heighten the risk of major increases in erosion, both surficial and mass wasting. Seven allotments (Big Beaver, Cow Creek, Croy Creek, Deer Creek (NC), Ear Creek, Soldier, and West Bellevue) which have brush control proposed for over 90 percent of their areas, are currently in good or excellent watershed condition, but include soils which feature potentially unstable material.

The consumptive use of water would increase by about 50 acre-feet per year; however, this increase would not be considered significant when compared to the available water supply.

TABLE 4-4

WATER RESOURCES IMPACT SUMMARY

Impacts	Proposed Action	No Change Alternative	No Grazing Alternative	Lower Stocking Alternative	Greater Production Alternative
Livestock-related water consumption	60 Acre-feet/Year	25 Acre-feet/Year	0	20 Acre-feet/Year	75 Acre-feet/Year
Sediment Yield					
Decrease	2 Allotments 18,093 Acres	0	16 Allotments 117,807 Acres	7 Allotments 39,521 Acres	0
Increase	8 Allotments 46,673 Acres	0	0	2 Allotments 2,994 Acres	17 Allotments 80,011 Acres
Expected short-term increases in sediment yield due to land treatments	2 Allotments 13,448 Acres	0	0	0	14 Allotments 71,988 Acres
Proposed land treatments may cause a severe increase in sediment yield	0	0	0	0	7 Allotments 24,770 Acres
Upland Watershed					
Improve	11 Allotments 64,096 Acres	0	24 Allotments 114,529 Acres	18 Allotments 98,567 Acres	1 Allotment 2,068 Acres
Decline	0	0	0	0	21 Allotments 87,480 Acres
Overall Condition					
Improve	3 Allotments 20,000 Acres	0	24 Allotments 137,212 Acres	8 Allotments 41,428 Acres	0
Decline	1 Allotment 4,277 Acres	0	0	0	19 Allotments 98,517 Acres

In this section the impacts expected to the vegetation resource from forage allocation, seasons of use, grazing systems, and range improvements are discussed separately for each alternative. The combined effects of these factors are then analyzed with regard to ecological condition, vegetative production, and riparian areas.

Consequences of the Proposed Action

Forage Allocation

Initial stocking levels would be consistent with each allotment's inventoried carrying capacity for both livestock and wildlife. The proposed stocking levels would not exceed the limit established to maintain the plants in a viable, healthy condition. Appendix 2 details the forage allocation method. For the SVPA, the proposed 29,877 AUMs or 23,900,600 pounds initially allocated for livestock grazing would represent a 30 percent increase over the five-year (1975-1979) average licensed use but an 18 percent decrease in active preference. The 30 percent increase over the five-year average would be attributed primarily to nonuse historically taken by sheep operators. The 18 percent decrease in active preference would result from 48,125 acres of the public lands in the SVPA being unsuitable for livestock grazing (20 percent unsuitable for cattle and 5 percent also unsuitable for sheep). Suitability criteria were not applied during the original SVPA adjudication. The proposed stocking levels for each allotment are presented in the Livestock Grazing section of this chapter (Table 4-25).

Improved vigor of forage plants would be expected in allotments proposed for decreases. Improved vigor would, in time, lead to increased productivity, cover, and condition. Downward adjustments in the initial stocking rates would decrease the grazing pressure on less desirable areas, e.g., slopes above 30 percent and areas more than one mile from water. Grazing pressure would remain the same in more desirable areas, including slopes of less than 20 percent and areas close to water. Fewer livestock would tend to congregate in desirable grazing areas for a longer period of time and would not be forced to utilize less-desirable areas (Hormay 1970). Unprotected riparian areas and meadows would continue to receive heavy use.

Long-term increases in stocking rates would not be detrimental to the vegetation resource because stocking level increases would be satisfied by

additional forage produced as a result of grazing systems, changes in seasons of use, and range improvements.

Seasons of Use

Changes in the adjudicated seasons of use are proposed for 68 allotments totaling 154,536 acres. Allotments proposed for seasons of use changes fall into three categories: (1) those in which livestock turnout dates in the spring are proposed to be delayed a minimum of 15 days, (2) those in which livestock turnout dates are proposed to be delayed a minimum of 15 days in the spring and livestock removed at least 15 days earlier in the fall, and (3) those in which livestock are proposed to be removed at least 15 days earlier in the fall. Proposed seasons of use changes are presented by allotment in Appendix 1 (Table A1-2).

Vegetation would benefit most in allotments where turnout dates are proposed to be delayed a minimum of 15 days in the spring. The most critical periods in the growth cycle of most perennial forage plants are: (1) early spring when the plants are initiating growth and, (2) just prior to the onset of the dry season. Approximately 75 percent of the carbohydrate reserves are used in the spring to produce the first 10 percent of a plant's annual growth (Stoddart and Smith 1955). Delayed spring grazing would have beneficial impacts on vegetation, and improvement in condition and productivity would be realized.

Grazing Systems

The proposed grazing systems fall into four categories: deferred use, deferred rotation, rest rotation, and seasonal; terms defined in the Glossary. Deferred use is proposed for 9 allotments totaling 17,998 acres, deferred rotation for 20 allotments totaling 79,812 acres, rest rotation for 11 allotments totaling 52,414 acres, and seasonal grazing for the remaining 57 allotments totaling 89,809 acres (Table A1-2). Table 4-5 compares the acreages and percentages of each type of grazing system in the proposed action to the present situation.

TABLE 4-5

SUMMARY OF CHANGES IN GRAZING SYSTEMS
UNDER THE PROPOSED ACTION

	Deferred Use		Deferred Rotation		Rest Rotation		Seasonal Use	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Present Situation	1,025	.4	29,324	12.2	26,618	11.1	183,066	76.3
Proposed Action	17,998	7.5	79,812	33.3	52,414	21.8	89,809	37.4

The implementation of grazing management systems would be beneficial to vegetation. Rest-rotation systems would be the most beneficial, followed by deferred rotation and deferred use. Hormay (1970) suggests that when perennial plants are rested from grazing, they store enough carbohydrate reserves to last for several years. The plants can tolerate defoliation by grazing animals for a year or two without significant stress, but under continuous early spring and season-long grazing, the plants cannot make and replenish carbohydrate resources. Eventually they weaken or die. By periodically resting or delaying grazing, the basic physiological requirements of the plants can be met.

Of the 57 allotments proposed for seasonal grazing, 25 would be grazed by herded sheep, but would not receive continuous season-long grazing. The remaining 32 allotments are cattle or combined cattle and sheep allotments. Improvement in these would be attributed to proper stocking rates, changes in seasons of use, and range improvements.

Range Improvements

Proposed range improvements are tabulated by allotment in Table A1-3. Range improvements (either grazing management facilities or land treatments) are proposed in 71 allotments. Grazing management facililties include water developments (springs, reservoirs, wells, and pipelines), fences, and cattleguards. Land treatments include brush control, seeding, or a combination of these.

Treatments are proposed for 23,985 acres in 35 allotments. These would provide an additional 2,973,352 pounds of usable forage (3,716 AUMs) on public lands within five years after completion.

The areas proposed for treatment are generally in poor to fair condition and characterized by dense stands of sagebrush with an understory of bunchgrasses and forbs.

Responses of grass and forb species vary significantly depending on the method of treatment. Sprays and mechanical methods generally have few long-term adverse effects (Nielsen and Hinckley 1975, Vallentine 1971). Adverse impacts to many forbs may be realized in the short term, depending on their phenological stage at the time of spraying. Burning may have serious consequences to many desirable grass and forb species, depending on soil moisture and weather conditions at the time of the burn.

Responses from all land treatments would be favorable for grass and forb species in the long term.

Grazing management facilities would initially disturb 63.5 acres (Table 4-1). Construction of the facilities would adversely affect vegetation in the short term. Long-term adverse impacts would occur around water developments, where livestock tend to congregate. However, improved distribution and better management would provide a net benefit to vegetation.

Condition

Based on the analysis described in Appendix 5, condition and trend would be expected to improve as a result of the proposed action. Table A5-5 compares the projected condition changes by allotment for the proposed action and all alternatives. Table 4-6 summarizes the projected changes for the proposed action.

TABLE 4-6

SUMMARY OF EXPECTED CHANGES IN ECOLOGICAL CONDITION
UNDER THE PROPOSED ACTION

	Good		Fair		Poor		Treated 1/	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Present	36,383	15.2	159,467	66.4	43,192	18.0	900	0.4
Projected 20 Years	75,552	31.5	115,240	48.0	24,804	10.3	24,437	10.2

1/ "Treated" condition applies to areas of brush control and/or seeding.

Productivity

Projected usable vegetation production in 20 years was determined through qualitative and quantitative analyses of proposed stocking rates, seasons of use, grazing systems, and land treatments. Appendix 5 presents the method used to analyze these factors and project vegetation production. Table A5-6 lists, by allotment, present vegetation production and 20-year production projections for the proposed action and each alternative. A summary of present and projected production for all public land in the SVPA is displayed in Table 4-7.

TABLE 4-7

SUMMARY OF EXPECTED CHANGES IN VEGETATION PRODUCTION UNDER THE PROPOSED ACTION

	Present (lb.)	20-Year Projection (lb.)	Net Change
Total Production	197,341,770	202,541,436	5,199,716
Total Usable Production	63,738,559	68,938,275	5,199,716

Riparian Areas

Although meadows and riparian vegetation make up less than 1 percent of the public lands in the SVPA (less than 2400 acres), they are environmentally critical in nature.

Adverse impacts would occur on unprotected meadow and riparian vegetation in cattle allotments. The impacts would be less adverse on sheep allotments. Cattle tend to graze heavily on bottomlands near water before moving on to steeper upland areas (Phillips 1965). This grazing pattern has led to the present deteriorated condition of bottomland vegetation in the SVPA. Little or no improvement would be expected in these vegetation community types if seasonal, deferred, deferred rotation, or rest rotation grazing strategies were adopted. Behnke (1977), Ames (1977), and Hormay (1976) support this contention. Ames says further that there is no known system of livestock management that will give adequate protection to a riparian zone.

Consequences of the No Change Alternative

Stocking Rates

Stocking rates based on the five-year average actual use (1975-1979) would be favorable to vegetation. For the SVPA the 18,453,600 pounds (23,067 AUMs) initially allocated to livestock grazing would represent only 70 percent of the inventoried grazing capacity.

Sixty allotments totaling 180,320 acres of public land would be stocked at less than their inventoried grazing capacity; seven allotments totaling 8,326 acres would be stocked at their grazing capacity; and thirty allotments totaling 51,387 acres would be stocked above the inventoried grazing capacity.

Adverse impacts ranging from very slight to high would occur. Improved condition/trend and vigor would be expected on allotments stocked under the inventoried grazing capacity except in unprotected meadows and riparian areas and in areas where livestock naturally tend to congregate, e.g., slopes less than 20 percent and areas close to water. These areas would remain static or continue to deteriorate at varying rates and to varying degrees. Decreased vigor followed by decreased condition and trend would be expected on allotments exceeding the inventoried grazing capacity.

Seasons of Use

The adjudicated seasons of use would have minimal to highly unfavorable impacts on vegetation. The adjudicated turnout date for the majority of the allotments is May 1. Three allotments have turnout dates of April 16. The impacts resulting from these seasons of use would be consistent with the principles described for the proposed action and would represent a continuation of the present situation.

Grazing Systems

Presently only eight allotments, totaling 51,964 acres, have rest-rotation or deferred-rotation grazing systems. Two additional allotments totaling 1,025 acres have deferred grazing. Of the eight allotments with

rotation grazing systems, Deer Creek (NC) and Dry Creek have been overstocked by 14 and 47 percent, respectively. Both allotments would exhibit adverse impacts, especially on unprotected meadow and riparian vegetation. Phillips Creek has deferred grazing and is presently 24 percent overstocked. It would also exhibit adverse impacts to vegetation. The remaining allotments with rotation grazing systems and deferred use are understocked and would exhibit favorable impacts to vegetation. Except in bottomlands, meadows, and riparian areas, vigor of desirable forage species would improve. Positive responses in condition and trend, cover, and productivity should also be realized.

Condition and trend would remain static under seasonal grazing on the remaining 34 allotments. Bottomlands, meadows, and riparian vegetation would continue to have adverse impacts, particularly in the cattle allotments.

Range Improvements

No range improvements are proposed. Impacts from maintenance of existing improvements would be insignificant.

Condition

Present condition and trend would remain static except in allotments that are overstocked or have unfavorable seasons of use. The allotments with intensive grazing systems and stocking levels at or below the inventoried grazing capacity would exhibit upward trends and improved condition. The criteria described in Appendix 5 were used to evaluate projected future condition. A summary of projected changes is presented in Table 4-8.

TABLE 4-8

SUMMARY OF EXPECTED CHANGES IN ECOLOGICAL CONDITION
UNDER THE NO CHANGE ALTERNATIVE

	Good		Fair		Poor		Treated 1/	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Present	36,383	15.2	159,467	66.4	43,192	18.0	991	0.4
Projected (20 years)	53,889	22.4	144,309	60.2	40,844	17.0	991	0.4

1/ "Treated" condition applies to areas of brush control and/or seeding.

Productivity

The same criteria used to project future production in the proposed action were used in this alternative. Productivity would decrease slightly as a result of unfavorable seasons of use and overstocking on 30 allotments. The combined impacts to future production from stocking rates, seasons of use, and grazing systems are tabulated by allotment in Appendix 5 (Table A5-6). Table 4-9 summarizes present and projected future production.

TABLE 4-9

SUMMARY OF EXPECTED CHANGES IN VEGETATION PRODUCTION
UNDER THE NO CHANGE ALTERNATIVE

	Present (lb.)	20-Year Projection (lb.)	Net Change (lb.)
Total Production	197,341,770	196,297,734	-1,044,036
Total Usable Production	63,738,559	62,694,523	-1,044,036

The impacts to meadow and riparian vegetation would be the same as under the proposed action.

Consequences of the No Grazing Alternative

Impacts to vegetation would be very favorable. The degree of improvement would vary depending on present condition, trend, and the seed source availability of desirable forage species. The vigor of desirable forage species would improve greatly in the short term, followed by improvements in condition and trend. Total plant cover, litter, and usable production would increase significantly. Vegetation communities would gradually move toward their natural potential or climax. Bottomlands, meadows, riparian areas, and other areas where livestock tend to congregate would exhibit the greatest response.

Condition

Based on the methods described in Appendix 5, and considering that 82 percent of the SVPA is presently in fair and good condition, a significant improvement in condition and trend would occur (Table 4-10).

TABLE 4-10

SUMMARY OF EXPECTED CHANGES IN ECOLOGICAL CONDITION
UNDER THE NO GRAZING ALTERNATIVE

	Good		Fair		Poor		Treated 1/	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Present	36,383	15.2	159,467	66.4	43,192	18.0	991	0.4
Projected 20 Years	105,974	44.1	99,806	41.6	33,262	13.9	991	0.4

1/ "Treated" condition applies to areas of brush control and/or seeding.

Productivity

Impacts to productivity would also be very favorable. The degree of improvement would vary, as with expected condition improvement, depending on present condition, trend, and the availability of seed source from desirable plant species. Bottomlands, meadows, riparian areas, and other areas where livestock tend to congregate would exhibit the greatest improvements. Future projected production is displayed by allotment in

Appendix 5 (Table A5-6). A summary of present and future production is presented in Table 4-11.

TABLE 4-11

SUMMARY OF EXPECTED CHANGES IN VEGETATION PRODUCTION UNDER THE NO GRAZING ALTERNATIVE

	Present (lb.)	20-Year Projection (lb.)	Net Change (lb.)
Total Production	197,341,770	208,822,955	11,481,185
Total Usable Production	63,738,559	75,218,744	11,481,185

Meadow and riparian vegetation areas would be expected to show marked improvement, according to findings by Duff (1978) and BLM experience with exclosures and meadowland riparian vegetation. Plant vigor would be returned to plants in these areas very quickly because (1) these areas have a much higher productive capacity, and (2) growing conditions and seasons are more favorable due to water availability.

Consequences of the Lower Stocking Alternative

Stocking Rates

Proposed stocking levels would be 39 percent (11,649 AUMs) lower than for the proposed action and 21 percent (4,839 AUMs) lower than the five-year (1975-1979) average actual use. Seventy-five allotments totaling 185,468 acres would be stocked at less than the inventoried grazing capacity, while twenty-three, totaling 54,565 acres, would be stocked at the inventoried grazing capacity.

Improved vigor of forage plants would be expected for all allotments. Lower stocking levels would significantly decrease grazing pressure on less desirable areas, e.g., slopes above 30 percent and areas more than one mile from water. Improved vigor would lead to improved condition and trend, as well as increased productivity and cover.

Grazing pressure would be reduced on more desirable areas, e.g., slopes less than 20 percent and on areas less than one mile from water

sources; however, meadows and riparian areas would continue to receive heavy use. On cattle allotments, fewer livestock would tend to congregate in the desirable grazing areas for longer periods of time and would not be forced to utilize less desirable areas.

Seasons of Use

Changes in seasons of use would be the same as under the proposed action. Greater improvement from the changes in seasons of use would be expected due to the lower level of livestock grazing.

Grazing Systems

Grazing systems would be the same as under the proposed action, but greater response would be expected due to the lower level of livestock grazing.

Range Improvements

No land treatments are proposed. Grazing management facilities would be basically the same as for the proposed action (Table A1-3), and impacts would be expected to be similar. Impacts from maintenance of existing improvements would not be significant.

Condition

Based on the methods described in Appendix 5, and considering that 82 percent of the SVPA is currently in fair and good condition, condition and trend would exhibit significant improvement. Improved condition and trend responses would be greater than expected from the proposed action and No Change alternative, but lower than the No Grazing alternative (Table 4-12). Appendix 5 (Table A5-5) lists projected condition by allotment.

TABLE 4-12

SUMMARY OF EXPECTED CHANGES IN ECOLOGICAL CONDITION
UNDER THE LOWER STOCKING ALTERNATIVE

	Good		Fair		Poor		Treated 1/	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Present	36,383	15.2	159,467	66.4	43,192	18.9	991	0.4
Projected 20 Years	101,883	42.4	105,626	44.1	31,528	13.1	991	0.4

1/ "Treated" condition applies to areas of brush control and/or seeding.

Productivity

Impacts to productivity would be favorable. Criteria used to evaluate future productivity were the same as described for the proposed action. Results of the combined impacts from stocking levels, seasons of use, grazing systems, and land treatments are displayed by allotment for the proposed action and alternatives in Appendix 5 (Table A5-6). A summary of present and future production is presented in Table 4-13 below.

TABLE 4-13

SUMMARY OF EXPECTED CHANGES IN VEGETATION PRODUCTION
UNDER THE LOWER STOCKING ALTERNATIVE

	Present (lb.)	20-Year Projection (lb.)	Net Change (lb.)
Total Production	197,341,770	202,824,581	5,482,811
Total Usable Production	63,738,559	69,221,370	5,482,811

Impacts to meadows and riparian vegetation would be slightly less than under the proposed action.

Consequences of the Greater Production Alternative

Stocking Rates

Stocking rates would be increased (based on the expected results of management and land treatments) from the 1975-1979 average use of 23,067 AUMs to 41,261 AUMs in the short term, and to 45,617 AUMs in the long term. Increased stocking would result in more intensive use and extensive damage in areas already heavily utilized. Heavy livestock concentration in unprotected meadow and riparian vegetation would accelerate deterioration in cattle allotments.

Seasons of Use

The proposed seasons of use changes are the same as for the proposed action, and anticipated impacts would be the same.

Grazing Systems

Grazing systems proposed are the same as in the proposed action, except for four allotments: (1) Baird would receive seasonal grazing rather than deferred rotation, (2) Cow Creek would have deferred rotation instead of rest rotation, (3) Deer Creek (SV) would have rest rotation instead of deferred rotation, and (4) Dry Creek would be managed under deferred rotation instead of rest rotation. Impacts from the proposed grazing systems and seasonal grazing would be expected to be the same as described for the proposed action.

Range Improvements

Impacts from proposed range improvements would be highly significant. Range improvements would be made in 86 allotments, as described in Appendix 1 (Table A1-3). A total of 168,376 acres (70 percent of the public lands in the SVPA) are proposed for land treatments that would provide an additional 18,114,413 pounds of usable forage (22,643 AUMs) within five to

six years after completion. The areas proposed for treatment are in poor, fair, and good condition and are characterized by moderate to dense stands of sagebrush with an understory of bunchgrass and forbs.

Responses of grass and forb species vary significantly depending on the method of treatment. Sprays and mechanical treatment generally have few long-term adverse impacts (Nielson and Hinckley 1975, Vallentine 1971). Adverse impacts to many forbs may occur in the short term depending on their phenological stage at the time of spraying. Burning may have serious consequences to many desirable grass and forb species depending on soil moisture and weather conditions at the time of the burn. Responses from all land treatments would be favorable for grass and forb species in the 20-year planning period.

Construction of grazing management facilities would initially disturb 131 acres of vegetation (Table 4-1). Long-term negative effects would occur to vegetation around water developments where livestock would tend to congregate. However, improved distribution and better management would have a net benefit to vegetation.

Condition

Based on the analysis method described in Appendix 5, condition on four allotments (2,524 acres) would not change because of the proposed continuation of seasonal grazing. In six allotments (totalling 2,876 acres) condition on 345 acres would decline because seasonal grazing would be continued and the proposed stocking rates would be greater than the projected future grazing capacities. Table A5-5 lists future condition by allotment. Projected changes are summarized in Table 4-14.

TABLE 4-14

SUMMARY OF EXPECTED CHANGES IN ECOLOGICAL CONDITION
UNDER THE GREATER PRODUCTION ALTERNATIVE

	Good		Fair		Poor		Treated 1/	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Present	36,383	15.2	159,467	66.4	43,192	18.0	991	0.4
Projected 20 Years	38,907	16.2	30,884	12.9	1,874	0.1	168,386	70.1

1/ "Treated" condition applies to areas of brush control and/or seeding.

Production

Impacts to productivity would be significant. As mentioned above, land treatments would provide an additional 18,114,413 pounds (22,643 AUMs) of usable forage. The proposed level of livestock use would result in a net increase of 6,423,450 pounds of usable forage. Results of the combined impacts from stocking level, seasons of use, grazing systems, and land treatments are displayed by allotment in Appendix 5 (Table A5-6). A summary of present and future production is presented in Table 4-15 below.

TABLE 4-15

SUMMARY OF EXPECTED CHANGES IN VEGETATION PRODUCTION UNDER THE GREATER PRODUCTION ALTERNATIVE

	Present (lb.)	20-Year Projection (lb.)	Net Change (lb.)
Total Production	197,341,770	203,765,220	6,423,450
Total Usable Production	63,738,559	80,162,009	6,423,450

The impacts to meadow and riparian vegetation would be similar to, but greater than, those described for the proposed action.

WILDLIFE

Consequences of the Proposed Action

Forage Allocation

Big Game. The proposed action would reserve sufficient forage for the long-term big game populations projected by the Idaho Department of Fish and Game and BLM. These long-term projections are based on the big game population goals jointly developed for the year 1990 (Table 4-16).

TABLE 4-16

ESTIMATED 1990 BIG GAME USE
ON PUBLIC LAND IN THE SVPA

	Summer	Winter	Migration	Total
Deer Months 1/	20,630	11,644	2,354	34,628
Elk Months	308	3,415	0	3,723
Antelope Months	1,423	0	0	1,423

1/ A deer month is equivalent to one deer spending 30 days in a given area, or any comparable combination of more animals over a shorter time period, for example, six deer each spending five days.

The projected long-term big game numbers represent average increases of 73 percent over the current numbers. A detailed explanation of how forage would be allocated among watershed, wildlife, and livestock is given in Appendix 1.

Big game habitat would be expected to benefit from proposed allocations in at least 29 allotments, and possibly as many as 48. Big game habitat condition would be unaffected in 49 allotments.

Upland Game. No specific amount of forage would be allocated to any upland game species, but habitat would be expected to improve in those allotments where more forage and cover would be available. Species benefited would include sage grouse, blue grouse, mourning dove, chukar, and cottontail. Upland game habitat would improve in at least 29 of the allotments and in as many as 48, depending on the actual livestock use. Sage grouse, the most important upland game species, would benefit in at least three allotments (Shirley, Poison Creek, and Elk Mountain), scheduled for reductions.

Aquatic and Riparian Habitats. Adjusting livestock numbers alone would have little or no impact on aquatic and riparian habitats because cattle would still tend to concentrate along unfenced creek bottoms. Unprotected riparian vegetation would begin to improve only after a severe reduction.

Changes in the kind of livestock could have significant effects on accessible aquatic and riparian areas. On those allotments proposed to change from sheep to cattle, the effect would be greater because cattle tend to concentrate more around wet areas for shade, water, and food than sheep do.

Sensitive Species. In the 29 allotments with a grazing reduction, cover and food should improve for prey species of the bobcat.

Mountain quail should respond favorably in allotments where there are proposed decreases in livestock use. Both bobcat and mountain quail could be negatively affected in allotments scheduled for an increase in livestock use.

The Wood River sculpin should not be adversely affected.

Grazing Systems

Grazing systems usually improve the ecological condition of the range. Although the effect upon wildlife varies from system to system and from animal to animal, progressing from a seasonal to a more intensive grazing management system, i.e., deferred, deferred rotation, or rest rotation (in order of increasing intensity), is usually beneficial. Benefits and changes vary directly, i.e., the greater the change, the greater the benefits. For comparative purposes, the estimated acreages of wildlife habitat expected to improve or deteriorate because of changes in grazing systems were calculated using this principle. The degree of improvement was not quantified.

Benefits to wildlife derived from increasing the intensity of management include: increased food quantity (pounds of edible vegetation) and quality (the nutritive mix of grasses, shrubs, and forbs), improved cover (shelter from predators and/or weather), and reduced disturbances during certain critical life processes (bird nesting and big game fawning or calving).

Big Game. Mule deer would be benefit from the proposed new grazing systems. On winter ranges, more grasses and forbs would be available when the deer arrive in the fall. The quality and quantity of bitterbrush, a major food source for wintering deer, would improve. In deer winter areas a total of 20,802 acres (54 percent of the total deer winter range) would improve from grazing system changes in nine allotments (Table 4-17).

Deer summer habitat would be expected to improve because of increased amounts of grasses and forbs available in those allotments with improved grazing sytems. A total of 96,560 acres of deer summer habitat (43 percent of the total) would be expected to improve in 30 allotments (Table 4-17).

Deer migration areas would likewise be expected to improve. A total of 43,260 acres of deer migration areas (38 percent of the total) would be expected to improve in 18 allotments (Table 4-17).

TABLE 4-17

EXPECTED IMPROVEMENT IN MULE DEER HABITAT
DUE TO GRAZING SYSTEM CHANGES IN THE PROPOSED ACTION

Allotment 1/	Public Land Expected to Improve 2/		
	Winter Range (Acres)	Summer Range (Acres)	Migration Areas (Acres)
Base Line	0	863	863
Big Beaver	0	1,907	1,907
Camp Creek	0	2,940	2,940
Courier	0	575	0
Cove	1,680	6,239	0
Cow Creek	0	160	1,105
Deer Creek (SV)	280	3,579	0
Ear Creek	0	3,632	2,378
East Fork	150	5,288	0
Elk Creek	0	1,130	1,130
Elk Mountain	0	1,013	0
Fairfield	0	0	640
Flat Top Sheep Co.	3,866	28,099	15,251
Hatty Creek	0	220	220
Hot Springs	0	952	952
Indian Creek	2,190	9,084	0
Kent Canyon	0	2,639	2,639
Little Fish Creek	0	1,154	0
Little Rock Creek	0	643	643
Muldoon Canyon	4,490	6,749	0
Queens Crown	3,548	100	3,548
Roanhide	0	1,108	1,108
Rough Creek	0	1,901	1,901
Scattered Tracts	0	325	325
Severe	0	200	200
Soldier	0	1,008	0
South East Fork	0	1,889	0
Square Mountain	0	230	0
Stocking	0	2,068	0
Timber Butte	2,460	5,355	0
West Bellevue	2,138	5.510	5,510
Total	20,802	96,560	43,260

1/ Only those allotments that include mule deer habitat expected to improve due to the proposed grazing systems are listed.
2/ Some areas are included in more than one column because of overlaps between habitat types.

Elk would benefit from the proposed changes in grazing systems similarly to deer. Approximately 11,720 acres (35 percent of the total) of elk winter range would improve in nine allotments (Table 4-18). Elk summer range would improve by 8,765 acres (56 percent of the total elk summer habitat). Antelope would benefit by an improvement of 16,200 acres (74 percent of the total antelope habitat) in five allotments (Table 4-18).

TABLE 4-18

EXPECTED IMPROVEMENT IN ELK AND ANTELOPE HABITAT
DUE TO GRAZING SYSTEM CHANGES IN THE PROPOSED ACTION

Allotment 1/	Public Land Expected to Improve 2/		
	Elk Winter Range (Acres)	Elk Summer Range (Acres)	Antelope Summer Range (Acres)
Baird	0	0	620
Base Line	585	0	0
Big Beaver	1,500	0	0
Courier	490	0	0
Deer Creek (NC)	3,130	0	0
Ear Creek	0	2,378	0
East Fork	0	0	280
Elk Creek	970	320	0
Elk Mountain	570	570	0
Flat Top Sheep Co.	0	0	10,280
Indian Creek	2,190	0	0
Little Fish Creek	0	0	480
Muldoon	0	1,480	0
Muldoon Canyon	2,245	0	0
Roanhide	0	1,108	0
Rough Creek	0	1,901	0
Square Mountain	40	0	0
Timber Butte	0	0	4,540
Total	11,720	8,765	16,200

1/ Only those allotments that include elk and antelope habitat expected to improve due to the proposed grazing systems are listed.
2/ Some areas are included in more than one column because of overlaps between types of habitat.

Upland Game. Sage grouse and blue grouse are the principal upland game species that would be affected. Both species would benefit from the increased amount of forbs available in allotments scheduled for more intensive management. Grazing systems would only slightly improve the riparian and meadow areas, upon which these species are highly dependent.

Livestock would continue to concentrate in and around these areas unless they were protected. However, there would still be a net improvement to sage grouse and blue grouse habitat because of increased food and cover. Table 4-19 lists the six allotments in which habitat should improve for sage grouse. Approximately 55 percent (12,299 acres) of the known potential sage grouse crucial nesting areas in the SVPA would be expected to improve.

TABLE 4-19

EXPECTED IMPROVEMENT OF SAGE GROUSE HABITAT
DUE TO GRAZING SYSTEM CHANGES IN THE PROPOSED ACTION

Allotment	Acres of Sage Grouse Habitat on Public Land Improving
Elk Mountain	529
Flat Top Sheep Co.	9,825
Little Rock Creek	539
Scattered Tracts	58
Shirley	122
Timber Butte	1,226
Total	12,299

Impacts to blue grouse and the other upland species (mourning dove, chukar, and cottontail) were not quantified, but conditions for them would be expected to improve similarly to sage grouse.

Aquatic and Riparian Habitats. Aquatic and riparian habitat along 12.6 miles of stream would improve. Approximately two miles would improve as a result of proposed changes in grazing systems on two allotments (Ear Creek and South East Fork). The remaining 10.6 miles would be subject to commitments to improve riparian areas in poor condition and certain other key stream habitat.

Sensitive Species. Mountain quail would be noticeably benefited because of increased vegetation diversity within its habitat. About 4.6 miles of stream habitat for the Wood River sculpin would be improved. The other sensitive species should not be affected.

Seasons of Use

Big Game. The primary concern with livestock seasons of use is fall and winter grazing in elk and deer winter areas. After about October 15 livestock shift to heavy bitterbrush use. Although the forage allocation method provides for an increase in livestock grazing of shrubs during the fall-winter period, it does not account for the greater increase in grazing of bitterbrush. Because bitterbrush is more palatable than other shrubs, it would be disproportionately reduced and would be less available for deer and elk arriving on their winter ranges.

Although significant acreages would be affected by late fall-winter grazing, the total represents a significant reduction from current grazing authorizations. Affected deer winter ranges would be reduced 51 percent from the present 41,049 acres to 20,090 acres, and affected elk winter ranges would be reduced 19 percent from 26,586 acres to 21,449 acres. The allotments and related acreages in deer and elk winter ranges proposed for livestock grazing after October 15 are listed in Appendix 6 (Table A6-2).

Deferring the grazing period until later in the spring would generally improve conditions for deer and elk, even though present turnout dates usually occur after these species have left the winter ranges. The proposed changes would reduce competition for space when deer and elk stay longer on their winter ranges. More grasses and forbs would be available for summer deer and elk as they enter the critical calving and fawning periods.

Upland Game. Sage grouse and blue grouse would benefit in those allotments where the turnout date is after June 1. After this date the new grouse broods begin using the emerging forbs. More would be available in allotments with later turnout dates.

Aquatic and Riparian Habitats. The proposed seasons of use would have little effect on these areas. Delayed spring turnout in several allotments could increase cover and insect production during the spawning season.

Sensitive Species. No species should be significantly affected by the proposed seasons of use.

Range Improvements

Specific types of range improvement projects considered here are reservoirs, spring developments, wells, pipelines, fences, cattleguards, brush control, and seedings.

Big Game. Reservoirs should have no significant effect on elk, deer, or antelope. Water is not a limiting factor for these species. Elimination of some vegetation during construction of reservoirs would be compensated for by fencing the development and immediate area and by planting disturbed areas.

Spring developments would improve conditions for big game, especially deer, by establishing thicker cover in the livestock exclosure around springs. An estimated 566 acres (Table 4-1) of upland habitat around spring developments would be moderately to severely disturbed by livestock, but this could be offset by the gain in riparian areas in good condition. If livestock use at a spring is presently heavy, and if the amount of water piped from the spring would not adversely affect the amount of riparian habitat, there would be a net benefit to big game.

The two wells and two and one-half miles of pipelines proposed would not significantly affect big game.

Although fences would conform to BLM policy for fencing in antelope and other areas, additional fences in big game areas would have a slightly adverse effect.

Antelope could use cattleguards to cross through fences. Deer and elk might occasionally be caught in a cattleguard, but would not be generally affected.

Because of the proposed guidelines for implementing range improvements (see Chapter 2), land treatments would provide a net benefit to big game. Specific treatment areas have not yet been determined; however, each would be individually analyzed through the Environmental Assessment process and the treatment designed to meet specific wildlife needs.

Upland Game. The guidelines for brush control (Chapter 2) should mitigate any adverse effect to sage and blue grouse and would improve some habitat areas by breaking up unnaturally dense stands of sagebrush. Crucial nesting areas and known winter areas would be protected from treatment.

Fenced reservoirs should increase the amount of brood-rearing habitat for sage grouse; however, brood-rearing habitat is not limiting in the SVPA.

Fenced spring developments would improve cover and available forbs for both sage and blue grouse. Other upland species should be similarly benefited. About 561 acres (Table 4-1) of habitat surrounding the springs would be moderately to severely disturbed by livestock. However, considering the acres of valuable riparian habitat gained, the overall effect would be beneficial.

Wells, fences, pipelines and cattleguards would not affect upland game.

Aquatic and Riparian Habitats. Spring developments would have a short-term adverse effect on the riparian vegetation and the wildlife associated with them. The riparian habitat around the developed springs would improve in the long term due to fencing. Fenced reservoirs would increase the amount of riparian and aquatic habitat.

Sensitive Species. The prey base of the bobcat should become more stable as their habitat diversity increases.

Consequences of the No Change Alternative

Forage Allocation

Big Game. Under this alternative, no specific amount of forage would be reserved for the long-term estimated big game populations. Currently 68 allotments have sufficient forage to support the future population estimates, while 29 do not.

Three allotments in crucial deer winter range (Cove, Dry Creek, and Shirley) would have insufficient forage to maintain the projected long-term winter deer numbers.

Elk would not reach or maintain the long-term projections in eleven allotments: Big Beaver, Deer Creek (NC), Elk Creek, Elk Mountain, Piney, Poison Creek, Powell Creek, Rough Creek, Shale, Sheep Point, and Shirley.

The Little Fish Creek Allotment would have insufficient forage for the projected long-term antelope population.

Upland Game. Current population levels would be maintained, but sage grouse and blue grouse habitat and population trends would not improve. Chukar, mourning dove, and cottontail populations and habitat would also remain at current levels and trends.

Aquatic and Riparian Habitats. Conditions and trends would remain at current levels for the inventoried aquatic and riparian habitats, i.e., 19 percent excellent, 23 percent good, 36 percent fair, and 22 percent poor.

Sensitive Species. There would be no change in the status of any sensitive species.

Grazing Systems

There would be no change in the current impacts on wildlife.

Seasons of Use

Late fall and winter use on elk and deer winter ranges would continue. Table A6-3 in Appendix 6 lists the allotments and acreages where livestock grazing would continue beyond October 15, when livestock use of bitterbrush is high. Ninety-four percent of the total deer winter habitat (41,049 acres) and 80 percent of elk winter range (26,586 acres) are currently being grazed by livestock after October 15.

Range Improvements

No improvements are proposed. Deer summer areas and sage grouse brood-rearing and nesting areas with overly dense sagebrush would continue to be in poor habitat condition and would receive little use by these species. Crucial wildlife habitats would remain untreated by brush control.

Consequences of the No Grazing Alternative

Forage Allocation

Big Game. This alternative would eliminate livestock-wildlife competition in the SVPA. There would be ample forage to allow the big game numbers to reach the long-term projections and possibly increase slightly beyond them. The quality of available forage would also improve, substantially increasing fawn and calf survival rates and herd production. Big game populations would be limited by the capacities of winter ranges to support the increased numbers.

Upland Game. Sage grouse habitat would improve substantially because of an expected abundance of available forbs and untrampled wet meadows and

riparian areas. Nesting habitat would slightly improve. Other upland species would respond favorably.

Aquatic and Riparian Habitats. Aquatic and riparian habitats on public land would respond dramatically to this alternative. In as little as five years many of the streams currently in poor and fair condition due to eroding banks and poor streamside cover would improve to fair and good condition. If livestock grazing were eliminated, it is estimated that by 1990 all streams on public land currently in poor and fair condition would improve to at least good condition.

All meadows currently grazed by livestock would improve. Some might become too rank for wildlife use, but only where big game populations were too low to keep the meadows open.

Waterfowl production would increase on the margins of ponds and reservoirs presently in poor condition because of heavy livestock use.

Generally, all wildlife associated with riparian and aquatic ecosystems would increase.

Sensitive Species. More diverse vegetation and improved riparian habitat should increase bobcat prey numbers and hence bobcat populations. Mountain quail populations should respond favorably to the increased diversity of available insects and seeds.

Grazing Systems

Most wildlife habitat within the SVPA would improve with no grazing. Some dense stands of sagebrush would have increased forb production, but the productivity would only increase slightly. The total acres of wildlife habitat are presented in Appendix 6 (Table A6-1).

Seasons of Use

Cessation of late fall and winter grazing in deer and elk winter ranges would ensure the availability of maximum amounts of bitterbrush for big game. This could increase the number of deer and/or elk that a given winter range could support.

Range Improvements

There are no range improvements proposed in this alternative. Overly dense stands of sagebrush would still limit deer summer habitat and sage grouse brood habitat productivity in some areas.

Consequences of the Lower Stocking Alternative

Forage Allocation

Big Game. More vegetation would be available to wildlife than under the proposed action. Consequently, the projected long-term numbers of big game would be achieved and probably exceeded. Numbers above the long-term projections would be limited more by the carrying capacities on winter ranges than by a lack of forage on summer habitat. This is especially true for deer, which would show the greatest long-term percentage increase.

Upland Game. Sage grouse and blue grouse would have better brood-rearing areas with this alternative than all others except No Grazing. Mourning dove, chukar, and cottontail rabbits would also increase. Although the amount of increase over current numbers is difficult to quantify, it would correlate inversely with the decrease in livestock use (approximately 21 percent less than current use).

Riparian and Aquatic Habitats. Riparian and aquatic habitats would improve only slightly from the overall 21 percent reduction in grazing. Cattle would continue to concentrate in the unprotected riparian areas.

Sensitive Species. Both the bobcat and mountain quail should benefit from the reduced grazing.

Grazing Systems

Big Game. Improvements in grazing systems would be greater than for the proposed action, accounting for additional acreages of habitat improvement (Table 4-20). Improvement by allotment is presented in Appendix 6 (Table A6-4).

TABLE 4-20

BIG GAME HABITAT EXPECTED TO IMPROVE
DUE TO CHANGES IN GRAZING SYSTEMS
UNDER THE LOWER STOCKING ALTERNATIVE

Type of Habitat	Acres of Public Land Expected to Improve
Deer	
Summer	100,389
Winter	20,802
Migration	47,089
Elk	
Summer	11,545
Winter	11,720

Upland Game. Sage grouse habitat would improve on about 12,241 acres (Table A6-5). This is slightly more than would be expected for the proposed action.

Aquatic and Riparian Habitats. Aquatic and riparian habitat along 12.6 miles of stream would improve. Approximately two miles would improve as a result of grazing system changes in two allotments (Ear Creek and South East Fork). The remaining 10.6 miles would improve from commitments to improve both riparian areas in poor condition and certain other key stream habitat.

Seasons of Use

Grazing after October 15 would occur on 21,449 acres of elk winter habitat, and 20,090 acres of deer winter habitat. Other wildlife species should not be affected by the seasons of use.

Range Improvements

No land treatments are proposed, so some of the dense sagebrush areas would remain in poor condition for summer deer and sage grouse.

Twenty-six reservoirs would be constructed and 78 springs developed. Water is not a limiting habitat factor for big game in the SVPA, so new available water would not significantly benefit big game species. The fenced riparian areas around springs, coupled with possibly creating new riparian areas around reservoirs, would result in improved cover and food for deer and elk and a variety of other wildlife species including sage grouse, blue grouse, bobcat, chukar, mountain quail, and waterfowl. Upland species would be adversely affected by livestock trampling around the new waters. An estimated 272 acres surrounding these water developments would be moderately to severely disturbed by increased livestock concentrations (Table 4-1). Riparian area improvements would outweigh the loss of some upland habitat to livestock trampling, resulting in a net benefit.

Although built to BLM standards for deer and antelope areas, fences would cause a net adverse effect on wildlife except when protecting riparian areas. This alternative proposes about seven fewer miles of fencing than the proposed action; therefore, the resulting impacts would be less. The impact of cattleguards, wells, and pipelines would be the same as the proposed action.

Consequences of the Greater Production Alternative

Forage Allocation

Big Game. Only sufficient forage for the current big game population levels would be reserved. The impact on deer would be severe, considering that the long-term projections allow for substantial population increases. Antelope and elk would be less severely affected because the projected long-term increases are less for these species. Forage for 21,306 deer months, 1,151 elk months, and 195 antelope months necessary to sustain the projected long-term populations would not be provided.

Upland Game. Sage grouse and blue grouse habitat would decline in quality. Increased livestock use would affect 99 percent (21,969 acres) of the known sage grouse critical nesting areas in the SVPA. Other species, including chukar, mourning dove, and cottontail rabbits, would be similarly affected.

Aquatic and Riparian Habitats. The increased stocking rates would increase the adverse effects to aquatic and riparian habitats. The decrease in habitat condition due to livestock numbers would be slight to moderate because livestock use is already concentrated in these habitat areas.

Sensitive Species. The mountain quail and bobcat would be adversely affected by increased forage allocation to livestock. The diversity and number of potential prey species for bobcats would decline. Cover, insect diversity, and forage quality and quantity would decline for the mountain quail.

Grazing Systems

Big Game. A number of grazing system changes in the Greater Production alternative would improve big game habitat over current conditions, but a number of acres would deteriorate (Table 4-21).

TABLE 4-21

BIG GAME HABITAT EXPECTED TO IMPROVE OR DETERIORATE
DUE TO GRAZING SYSTEM CHANGES
UNDER THE GREATER PRODUCTION ALTERNATIVE 1/

Type of Habitat	Acres of Public Land	
	Improving	Deteriorating
DEER		
Summer	99,690	18,245
Winter	18,982	11,936
Migration	43,850	21,445
ELK		
Summer	7,117	0
Winter	11,720	0
ANTELOPE		
Summer	15,580	0

1/ Acreages by allotment are presented in Appendix 6 (Tables A6-6 through A6-14).

Upland Game. Approximately 12,000 acres of sage grouse habitat would improve because of grazing system changes. This acreage is identical to that listed for the proposed action (Table 4-19). Other upland game should be affected similarly to the proposed action.

Aquatic and Riparian Habitats. The aquatic habitat condition on four miles of stream in the Croy Creek and Dry Creek allotments would deteriorate, while one mile in the South East Fork Allotment would improve.

Sensitive Species. The bobcat and mountain quail would be largely unaffected by changes in the grazing systems.

Seasons of Use

Late fall and winter grazing in deer and elk winter ranges would be the same as for the proposed action, as would expected impacts.

Range Improvements

Big Game. The acres of proposed brush treatment would have a devastating effect on antelope, deer-winter, and elk-winter ranges. Up to 85 percent of the antelope habitat, 96 percent of the deer winter habitat, and 78 percent of the elk winter habitat would be damaged. Population levels of big game would plummet drastically and would take 20 to 40 years to recover. Maximum and minimum acreages and percentages of habitat are listed in Table 4-22. Even with the minimum overlap of treatment, decreases in elk and deer winter habitat would still be extreme.

Numbers of new reservoir and spring developments would be similar to the proposed action. A net loss to big game would result because of moderate to severe disturbances expected from livestock concentrations on approximately 1,041 acres (Table 4-1) of terrestrial habitat near the new waters.

Additional fences would have a negative effect on big game. The wells, pipelines, and cattleguards would have little affect on the big game.

Upland Game. Brush control would adversely affect 17 to 90 percent (3,678 to 10,061 acres) of the sage grouse habitat (Table 4-22), having a moderate to extreme adverse impact on these birds. Blue grouse, mourning dove, and cottontail would also be adversely affected.

Because of the estimated 1,041 acres that would be moderately to severely disturbed by livestock (Table 4-1) around new reservoirs and developed springs, there would be a net negative impact to upland game from these developments.

Aquatic and Riparian Habitats. Increased sedimentation from proposed brush control would decrease water quality in most of the streams in the SVPA.

Reservoir and spring developments would improve or increase riparian and aquatic habitat. Waterfowl would nest around some of the reservoirs. Some of the water developments may draw cattle from some of the heavily used streambottoms, slightly decreasing the impacts there.

Sensitive Species. Bobcat and mountain quail would be adversely affected by the brush treatment. Cover and food would increase around springs because of the proposed fencing, but surrounding habitat would be so degraded by brush control that these species would not benefit by the small increase in riparian vegetation.

The Wood River sculpin would be severely affected by the decrease in quality of aquatic habitat.

TABLE 4-22

MAXIMUM AND MINIMUM ACRES OF DEER AND ELK WINTER HABITAT, ANTELOPE SUMMER HABITAT, AND POTENTIAL SAGE GROUSE NESTING HABITAT AFFECTED BY BRUSH CONTROL IN THE GREATER PRODUCTION ALTERNATIVE

Allotment 1/	Public Land In Allotment (Acres)	Proposed Brush Control (Acres)	Antelope Habitat (Acres)	Maximum/Minimum Habitat Treated	Deer Winter Habitat (Acres)	Maximum/Minimum Habitat Treated	Elk Winter Habitat (Acres)	Maximum/Minimum Habitat Treated	Sage Grouse Habitat (Acres)	Maximum/Minimum Habitat Treated
Base Line	863	862	0	0	0	0	585	585/585	0	0
Big Beaver	1907	1767	0	0	0	0	1500	1500/1360	0	0
Bullion Gulch	1454	1322	0	0	1454	1322/1322	0	0	0	0
Cherry Creek	1089	1089	0	0	0	0	1089	1089/1089	0	0
Courier	575	575	0	0	0	0	490	490/490	0	0
Cove	6967	3356	0	0	1680	1680/0	0	0	0	0
Croy Creek	8478	7999	0	0	2495	2495/2016	0	0	0	0
Deer Creek (SV)	3579	3436	0	0	280	280/137	0	0	0	0
Deer Creek (NC)	3130	2968	0	0	0	0	3130	2968/2968	0	0
Dry Creek	12805	11675	0	0	9441	9441/8311	0	0	0	0
East Fork	5288	4048	280	280/0	150	150/0	0	0	0	0
Elk Creek	1130	669	0	0	0	0	970	669/509	0	0
Elk Mountain	1130	1013	0	0	0	0	570	570/453	529	529/412
Elkhorn	2821	2621	0	0	0	0	375	375/175	0	0
Flat Top Sheep Co.	28099	13600	10280	10280/0	3866	3866/0	0	0	9825	9825/0
Hyndman	360	360	0	0	0	0	300	300/300	0	0
Indian Creek	9084	8220	0	0	2190	2190/1326	2190	2190/1326	0	0
Lava Lake	10298	3465	4160	3465/0	0	0	0	0	2848	2848/0
Little Beaver	4646	4394	0	0	0	0	4646	4394/4394	0	0
Little Fish Creek	1154	775	480	480/101	0	0	0	0	0	0
Little Rock Creek	643	643	0	0	0	0	0	0	539	539/539
Lower Rock Creek	3978	1980	0	0	0	0	0	0	2132	1980/134
Martin Canyon	4336	2624	0	0	0	0	2245	2245/533	0	0
Muldoon	5412	1200	580	580/0	0	0	1480	1200/0	54	54/0

TABLE 4-22 (cont.)

MAXIMUM AND MINIMUM ACRES OF DEER AND ELK WINTER HABITAT, ANTELOPE SUMMER HABITAT, AND POTENTIAL SAGE GROUSE NESTING HABITAT AFFECTED BY BRUSH CONTROL IN THE GREATER PRODUCTION ALTERNATIVE

Allotment 1/	Public Land In Allotment (Acres)	Proposed Brush Control (Acres)	Antelope Habitat (Acres)	Maximum / Minimum Habitat Treated	Deer Winter Habitat (Acres)	Maximum / Minimum Habitat Treated	Elk Winter Habitat (Acres)	Maximum / Minimum Habitat Treated	Sage Grouse Habitat (Acres)	Maximum / Minimum Habitat Treated
Muldoon Canyon	6732	5520	0	0	4490	4490 / 3278	2245	2245 / 1033	0	0
North 40	142	102	142	102 / 102	0	0	0	0	0	0
Piney	484	349	0	0	0	0	80	80 / 0	0	0
Poison Creek	5335	5246	0	0	0	0	260	260 / 171	2594	2594 / 2505
Powell Creek	200	200	0	0	0	0	40	40 / 40	0	0
Queens Crown	3548	3028	0	0	3548	3028 / 3028	0	0	0	0
Quigley	5972	5577	0	0	2488	2488 / 2093	2488	2488 / 2093	0	0
Red Elephant	1660	1210	0	0	0	0	240	240 / 0	0	0
Rota Run	683	583	0	0	683	583 / 583	0	0	0	0
Scattered Tracts	325	325	0	0	0	0	0	0	58	58 / 58
Sheep Creek	4277	2010	0	0	2090	2010 / 0	0	0	236	236 / 0
Sheep Point	834	759	0	0	0	0	728	728 / 653	0	0
Shirley	107	30	0	0	40	30 / 0	107	30 / 30	107	30 / 30
Square Mountain	272	249	0	0	0	0	40	40 / 17	0	0
Timber Butte	5675	3500	4540	3500 / 2365	2460	2460 / 285	0	0	1226	1226 / 0
Timber Gulch	2816	2553	0	0	640	640 / 377	1040	1040 / 777	0	0
West Bellevue	5510	5136	0	0	2138	2138 / 1764	0	0	0	0
West Fork Fish Creek	1259	320	96	96 / 0	0	0	0	0	142	142 / 0
Total for Entire SVPA 2/	240,033	168,376	22,000	18,783 / 2,568	41,200	39,291 / 24,520	33,200	25,766 / 18,996	22,200	20,061 / 3,678
Maximum Percent of Total Habitat / Minimum				85% / 12%		96% / 60%		78% / 57%		90% / 17%

1/ Only those allotments proposed for treatment and which include habitat are listed.
2/ The totals shown for public land, proposed brush control, and habitat acres are greater than the AUMs of the corresponding columns because not all allotments are listed.

Impacts to cultural resource sites (both prehistoric and historic) consist of changes from their original condition. Alterations in the physical structure of cultural resource sites constitute a stage in the deterioration of the sites' total potentially recoverable information. Since cultural resources are finite and nonrenewable, such alterations are both permanent and irreversible.

Livestock grazing and associated trampling affect cultural resources directly through soil disturbance (Limbrey 1975:240) and artifact modification (breakage, displacement in location, etc.) and indirectly by contributing to natural erosional processes. Open sites (base camps, hunting camps, tool manufacturing sites) and isolated artifacts are categories of cultural resources most susceptible to impacts from livestock.

Soil disturbance includes soil compaction, which results in (1) the vertical displacement and modification of buried artifacts and features associated with cultural resource sites and (2) the surface modification and horizontal displacement of surface artifacts and features. Cattle cause greater concentrated trampling around water sources and in trailing than do sheep, which cause more spatially extensive damage in similar situations. However, because they are smaller and not allowed to congregate in a given area for long periods, sheep produce less soil compaction that could cause horizontal and vertical disturbance to cultural resource sites.

Impacts to cultural resource sites from vandalism or unauthorized removal of surface artifacts are ongoing and would not be expected to either increase or decrease as a result of implementing the proposed action or alternatives.

The degree of impact to cultural resource sites cannot be readily quantified. For purposes of this analysis "slight" impacts result in less than 10 percent deterioration of site integrity; "low" impacts range from 10 to 30 percent deterioration; "moderate" from 30 to 75 percent; and "severe" from 75 percent to total destruction.

Consequences of the Proposed Action

The degree of impact to a given cultural resource resulting from implementation of the proposed action would depend on two factors: (1) the physical attributes and location of the site, and (2) the kind and extent of disturbance. Accurate estimates of the total number of cultural resource sites affected cannot be made from presently available data.

Implementation of the proposed grazing systems would, in some cases, increase livestock distribution within given pastures, thus increasing the likelihood of adverse impacts to cultural resources caused by trampling and subsequent erosional processes. The number of sites damaged would show a slight increase over the present situation. Where livestock distribution is decreased over present levels in given pastures, a concomitant decrease in adverse impacts would be anticipated.

Reduced impacts to cultural resources, especially from livestock trampling, would be expected in those allotments where the proposed initial stocking rate is to be adjusted downward, but in those allotments where the proposed initial stocking rate is to be adjusted upwards, disturbances to cultural resources would be expected to increase accordingly.

Range improvement projects, particularly water developments, could cause a slight increase in the number of sites damaged by trampling and erosion. The damage would likely result from livestock concentrations near project developments, but outside the area examined in the intensive, site-specific cultural resource inventory that precedes project development. Slight to moderate damage could also occur to currently undiscovered cultural resource sites during project implementation.

Beneficial impacts would also be expected to result from range improvements. The intensive cultural resource inventory conducted prior to project development would likely reveal the existence of currently undiscovered sites, thereby increasing both the cultural data base and the amount of potentially discoverable information. Furthermore, guidelines and requirements for range improvement projects (see Chapter 2) could lead to beneficial effects to cultural resources by stabilizing subsurface cultural deposits through increased ground cover and reduced erosion, and by such actions as fencing spring heads to include cultural resource sites, thus reducing the probability of livestock trampling.

No cultural resource sites currently listed on the National Register of Historic Places would be adversely affected by the proposed action, but presently undiscovered cultural resource sites of National Register quality could be affected by proposal implementation.

Consequences of the No Change Alternative

Under this alternative the present slightly downward trend in the condition of cultural resources in the SVPA would continue because alterations to cultural resource sites are cumulative, permanent, and irreversible. Artifact damage and displacement due to cattle trampling and erosional processes would be expected to continue at present rates. Some increase in trampling and erosional impacts could be expected in areas of heavy livestock concentrations, particularly near unprotected springs and riparian areas.

Because no new range improvement projects would be undertaken, a slight to moderate decrease in base-line data would be expected, as cultural resource clearance activities would not be needed and currently undiscovered sites would likely remain undiscovered.

Consequences of the No Grazing Alternative

Damage to cultural resource sites from livestock trampling and subsequent erosional activities would cease, constituting an improvement over the present situation. Benefits would be most effectively realized in areas where livestock currently concentrate. Intermingled private and State lands would undergo continued, or perhaps increased, damage.

Consequences of the Lower Stocking Alternative

Impacts expected from range improvements and grazing systems would be the same as for the proposed action. Impacts resulting from trampling and subsequent erosion would continue, but on a lower level than under the proposed action. A decreased stocking rate in many allotments would improve vegetation cover, reduce erosion and thus tend to stabilize cultural resource sites.

Some long-term beneficial impacts would be expected in base-line data, as necessary cultural clearances would increase the opportunities for cultural resource site discovery.

Consequences of the Greater Production Alternative

Severe impacts could occur to cultural resources. This would be especially likely in areas proposed for land treatments, as these can cause significant surface disturbance and could thus be instrumental in displacing artifacts and compromising the stratigraphic integrity of cultural resource sites.

Some beneficial impacts would be expected in the short term. These would consist of an expected increase in cultural resource base-line data generated by intensive on-ground inventories in the proposed treatment areas. These inventories would allow for the recordation of presently unknown sites and would provide an opportunity to avoid sites and otherwise mitigate expected impacts.

Regional population growth will cause most recreation use to increase in the SVPA regardless of the alternative implemented. For this analysis, the base figures for present and projected recreation use were derived from the 1977 Idaho Outdoor Recreation Plan (IDP&R 1977). The flexible nature of recreation use makes quantifying changes from implementation of the various alternatives difficult. Future recreation use patterns and levels may also be influenced by fuel costs and availability.

Off-road vehicle (ORV) use, hunting, and fishing are the major recreation activities in the SVPA that would be affected. The following analysis is, therefore, restricted to these activities. Table 4-23 summarizes projected recreation use in these activities for the present (1980) and long term (1990) for the proposed action and all alternatives. Particular recreation impacts are also addressed in the following narrative.

TABLE 4-23

PROJECTED RECREATION USE IN 1990 COMPARED TO 1980
FOR THE PROPOSED ACTION AND ALTERNATIVES 1/

Management Option Year	Recreation Activity		
	Off-Road Vehicle Use 2/	Hunting	Fishing
Proposed Action			
1980	24,646	15,521	9,188
1990	36,699	46,446	11,597
No Change 3/			
1980	24,646	15,521	9,188
1990	36,699	19,272	11,597
No Grazing			
1980	24,646	15,521	9,188
1990	36,699	46,446	23,194
Lower Stocking			
1980	24,646	15,521	9,188
1990	36,699	46,446	11,597
Greater Production			
1980	24,646	15,521	9,188
1990	36,699	9,636	10,437

1/ Figures given are for activity occasions, a standard unit of recreation use consisting of one individual participating in one activity during all or any reasonable portion of one day.
2/ Off-highway vehicle use and snowmobiling have been combined for total ORV activity occasions.
3/ These figures represent a continuation of the current trend.

Consequences of the Proposed Action

Off-Road Vehicle Use

Construction of 22.8 miles of fence in areas suitable for ORV and snowmobile use is proposed. Fences would be barriers to cross-country ORV travel and, when nearly buried by snow, a hazard to snowmobilers. Gates installed where fences cross roads would be an annoyance to motor vehicle users throughout the SVPA.

Proposed removal of brush by land treatments would enhance opportunities for cross-country travel. Development of new access trails for construction and maintenance of range improvements would enhance opportunities for motorized recreation vehicle use.

Hunting

The proposed action would result in an increase in the quantity and quality of big game and upland game hunting opportunities in the SVPA. In the long term, implementation of the proposed action would be expected to result in a huntable deer population increase of approximately 140 percent over the present levels. Corresponding increases in hunting activity occasions and hunter success ratios would be expected.

Proposed fences would restrict hunting access, but service roads to proposed range improvements would provide access and aid in dispersing hunting use.

Fishing

Trout numbers would not change dramatically, despite expected improvement in certain protected stream habitat and riparian vegetation. Fishing use would increase to levels projected by the 1977 Idaho Outdoor Recreation Plan. Implementing the proposed action would not cause fishing use to significantly change from the projected rate of increase.

Consequences of the No Change Alternative

Off-Road Vehicle Use

Existing fences would continue to inhibit cross-country ORV use.

Hunting and Fishing

There would be a slight decrease in huntable populations of big game animals and birds. Populations of trout would also slightly decrease. Hunting and fishing use would increase to levels projected by the 1977 Idaho Outdoor Recreation Plan, but success ratios would decrease because increasing numbers of sportsmen would be pursuing a relatively fixed number of game species.

Consequences of the No Grazing Alternative

Off-Road Vehicle Use

Fences that act as barriers and hazards to off-road vehicle users could be removed from public land; however, new fences would probably be constructed on boundaries between public and private or State land. Increased brush and heavy vegetative growth along streams could restrict access in some areas. Discontinued maintenance of existing access routes would have an adverse impact on access.

Hunting

Huntable populations of mule deer would more than double. There would also be significant increases in elk, antelope, and upland game populations. These increases would result in corresponding increases in hunting activity occasions and hunter success ratios.

Fishing

Stream habitat and riparian vegetation coverage would greatly improve. Trout numbers and quality would increase significantly. Corresponding increases could be expected in fishing activity occasions.

Consequences of the Lower Stocking Alternative

Off-Road Vehicle Use

Sixteen miles of fence would be constructed in areas suitable for ORV and snowmobile use. These fences would be barriers to cross-country ORV travel and, when nearly buried by snow, a hazard to snowmobilers. Gates installed where fences cross roads would be an annoyance to motor vehicle users throughout the SVPA.

Development of new access trails for construction and maintenance of range improvements would enhance opportunities for motorized recreation vehicle use.

Hunting

The quantity and quality of big game and upland game hunting opportunities in the SVPA would increase. This alternative would be expected to increase huntable deer populations in the SVPA more than 140 percent in the long term. Corresponding increases in hunting activity occasions and hunter success ratios would also occur.

Fishing

Trout numbers would not change dramatically. Implementing this alternative would not cause a change in the levels of fishing use projected by the 1977 Idaho Outdoor Recreation Plan.

Consequences of the Greater Production Alternative

Off-Road Vehicle Use

Construction of 23.6 miles of fence in areas suitable for ORV and snowmobile use would be barriers to cross-country ORV travel and, when nearly covered by snow, a hazard to snowmobilers. Gates installed where fences cross roads would be an annoyance to motor vehicle users.

Proposed removal of brush by land treatments would enhance opportunities for cross-country travel. Development of new access trails for construction and maintenance of range improvements would enhance opportunities for motorized recreation vehicle use.

Hunting

The quantity and quality of big game and upland game hunting opportunities in the SVPA would decrease drastically. Deer populations in the SVPA would be expected to decrease to less than 50 percent of the 1980 levels in the long term, with corresponding decreases in hunter activity occasions and in hunter success ratios.

Fishing

The quality of stream habitat and riparian vegetation coverage would decrease dramatically. Trout numbers would also decrease sharply, reducing fishing in the long term by 10 percent.

VISUAL RESOURCES

Visual impacts from range improvements proposed in this EIS were evaluated using the BLM's visual contrast rating system (BLM Manual 8431). Evaluations assumed that the project was viewed from a foreground view

(from one-half mile to one mile) and that the development was in its third year (some projects which are very noticeable in their first year quickly fade). Contrasts over the long term would become less evident. Only those range improvement projects involving brush control and/or seeding were found to have contrasts that would not meet the objectives of the existing visual resource class. Expected changes are summarized in Table 4-24.

Contrasts caused by forage allocations, grazing systems, and seasons of use would be slight, and would not cause the visual resource class to change.

TABLE 4-24

EXPECTED CHANGES IN VISUAL RESOURCE CLASSES DUE TO RANGE IMPROVEMENTS IN THE PROPOSED ACTION AND ALL ALTERNATIVES 1/

Management Options Visual Resource Class	Present Acres	Future Acres	Net Change In Acres
Proposed Action			
Class I	13,678	13,678	0
Class II	21,350	17,723	-3,627
Class III	69,530	73,157	+3,627
Class IV	140,532	140,532	0
Class V	150	150	0
No Change Alternative			
Class I	13,678	13,678	0
Class II	21,350	21,350	0
Class III	69,530	69,530	0
Class IV	140,532	140,532	0
Class V	150	150	0
No Grazing Alternative			
Class I	13,678	13,678	0
Class II	21,350	21,350	0
Class III	69,530	69,530	0
Class IV	140,532	140,532	0
Class V	150	150	0
Lower Stocking Alternative			
Class I	13,678	13,678	0
Class II	21,350	21,350	0
Class III	69,530	69,530	0
Class IV	140,532	140,532	0
Class V	150	150	0
Greater Production Alternative			
Class I	13,678	13,678	0
Class II	21,350	5,239	-16,111
Class III	69,530	85,641	+16,111
Class IV	140,532	140,532	0
Class V	150	150	0

1/ For a description of the visual resource classes and the contrast rating system, see Appendix 8.

Consequences of the Proposed Action

Forage allocation, grazing systems, seasons of use, and range improvements would not have noticeable impacts on lands under wilderness review in the SVPA.

Consequences of the No Change Alternative

No project development or land treatments would take place on public lands under wilderness review. Current levels of direct livestock impact would continue on scenic qualities, fish and wildlife habitat, and other supplemental values.

Consequences of the No Grazing Alternative

The elimination of grazing on public lands under wilderness review would allow facilities associated with grazing to be removed. The removal of such facilities would improve the natural character of the land. The absence of livestock would improve opportunities for primitive recreation.

Consequences of the Lower Stocking Alternative

Forage allocation, grazing systems, seasons of use, and range improvements would not have noticeable impacts on the public lands under wilderness review in the SVPA.

Consequences of the Greater Production Alternative

Forage allocation, grazing systems, and seasons of use would not have noticeable impacts on land under wilderness review in the SVPA. Range

improvements proposed could include 7,035 acres of land treatments in the Friedman Creek Wilderness Study Area (53-5) and one spring development in the Little Wood River Wilderness Study Area (53-4). Public lands under wilderness review would be subject to the Interim Management Policy and Guidelines for Lands Under Wilderness Review, issued by the U.S. Department of the Interior on December 12, 1979. Specific impacts of each proposed activity on public lands under wilderness review will be assessed in site-specific analyses.

LIVESTOCK GRAZING

Consequences of the Proposed Action

The short- and long-term stocking levels given in the following narratives are for public land in the entire SVPA. Allotment-specific allocations for the short and long term are shown in Tables 4-25 and 4-26, respectively. The economic impacts of proposed adjustments are tabulated and discussed in the Economics section of this chapter.

The proposed initial stocking rate is 29,877 AUMs, 6,627 AUMs below active preference and 6,810 AUMs above the 1975-1979 average actual use. After twenty years, forage production would increase 2,353 AUMs from grazing management and land treatments. Increased forage would be allocated to livestock.

The proposed stocking rates, grazing systems, seasons of use, and range improvements would increase vigor and production of preferred forage species. This expected improvement would be reflected in improved livestock conditions. The proposed initial reduction in active preference from 22,637 to 15,820 AUMs on 48 allotments would balance vegetative consumption with existing production. An initial increase from 1,331 to 1,356 AUMs would occur on one allotment. The active preference would not change on 46 allotments with 12,536 AUMs. An additional 165 AUMs would be allotted in two allotments which currently have no active preference.

The proposed action would require closer supervision of cattle by ranchers and increased work loads for moving livestock when full allowable use of pastures has been reached. Permittees would be required to remove livestock from land treatment areas (or sometimes entire pastures) for as long as two growing seasons while seedlings become established. Such action could result in a demand for other pasturage during the interim, but sufficient additional pasturage may not be available to permittees to make this adjustment. This could force a short-term reduction in both herd size and income. The overall net effect on livestock grazing would be beneficial, despite some individual and short-term adverse impacts.

Consequences of the No Change Alternative

Livestock grazing would continue at the present five-year average of 23,067 AUMs. In the long term, the 73 allotments currently grazed below the inventoried grazing capacity would produce an estimated 15,735 AUMs above the five-year average use. The condition of livestock on these allotments would continue to be good. The 24 allotments currently grazed above the inventoried grazing capacity would produce an estimated 288 fewer AUMs in the long term. Livestock on these allotments would be expected to use less-suitable areas, eat plants of lower palatability, and show lower weight gains.

Consequences of the No Grazing Alternative

Discontinuing all livestock grazing on public lands in the SVPA would require permittees to buy, lease, or develop forage to compensate for the loss of 36,504 AUMs. Because the percentages that public land grazing represents in individual operations vary widely, there would be a wide variation in impacts. Some of the intermingled private land would be unusable because it would be too expensive to fence. Some individuals could not or would not adjust to the change and would choose to sell or lease their ranches. Other permittees would probably cut back the size of their breeding herd until a modified yearlong operation could be developed on private or other public lands.

Consequences of the Lower Stocking Alternative

The initial stocking rate on 67 allotments would be 11,649 AUMs less than for the proposed action. The remaining 30 allotments would be stocked at 6,579 AUMs, the same as for the proposed action. This represents an initial reduction of 18,276 AUMs from the current active preference, or 4,839 AUMs less than current actual use.

No short-term impacts would result on the 23 allotments where no change in active preference is proposed. In the other 74 allotments permittees would have to either acquire additional forage or reduce their herd sizes.

The long-term effects of stocking at the levels proposed would be generally beneficial. An increase of approximately 1,373 AUMs of allocable forage would be expected over the entire SVPA.

Consequences of the Greater Production Alternative

Initial cumulative reductions of 3,605 AUMs from current active preference would occur on 37 allotments. The active preference of 1,373 AUMs on three allotments would not change. Fifty-seven allotments would be increased 8,362 AUMs over the current active preference. The total initial stocking rate would be 41,261 AUMs. This compares to 36,504 AUMs of current active preference and represents an increase of 4,757 AUMs or 13 percent. An increase of 4,356 AUMs (11 percent) would be expected in the long term.

Land treatments would improve access to areas in allotments where dense shrubs do not allow freedom of movement to sheep. Various land treatments would also increase the amount of palatable forage for sheep, cattle, and horses. Some permittees would be required to remove livestock from certain pastures for at least two growing seasons while seedings become established. This would require them either to find other pasture or reduce their herd size for that period of time.

TABLE 4-25

FORAGE ALLOCATION ON PUBLIC LANDS BY ALLOTMENT

Allotment Name	Kind of Livestock	Active Preference (AUMs)	Proposed Stocking Rates (AUMs)					Competitive Wildlife Needs (AUMs)		Inventoried Grazing Capacity (AUMs) 2/
			Proposed Action	No Change 1/	No Grazing	Lower Stocking	Greater Production	1980	1990	
Baird	cattle	135 3/	40	34	0	40	40	5	13	94
	sheep		95	23	0	95	127			134
Baptie	cattle	128 3/	0	8	0	0	0	8	19	99
	sheep		128	32	0	53	176			184
Barton	cattle	100	56	100	0	18	104	1	3	59
Baseline	cattle	138	138	131	0	39	199	13	14	167
Bennett	cattle	62	62	25	0	4	62	0	0	62 4/
Big Beaver	cattle	144	0	130	0	0	0	355	460	261
	sheep	201	130	82	0	0	324			878
Brock Creek	cattle	19	19	12	0	16	50	0	0	25
Bullion Gulch	sheep	274	256	104	0	256	280	15	39	295
Camp Creek	cattle	363	332	364	0	80	409	0	0	502
	sheep	89	120	92	0	79	199			730
Cherry Creek	sheep	150	60	51	0	3	114	53	60	593
Colorado Gulch	sheep	27	27	13	0	27	155	6	13	161
Cottonwood	sheep	288	288	220	0	288	600	0	0	710
Courier	cattle	58	58	36	0	58	130	0	12	115
Cove	cattle	1302	528	659	0	308	690	0	0	528
Cow Creek	cattle	0	134	0	0	90	262	0	0	207
	sheep	134	0	134	0	0	0			590
Crater	sheep	396	396	361	0	290	425	0	0	533
Croy Creek	cattle	267	960	960	0	491	960	35	69	1203
	sheep	1064	371	311	0	371	768			2059
	sheep trail	0	25	25	0	25	25			
Deer Creek (SV)	cattle	299	299	296	0	299	567	6	13	453
Deer Creek (NC)	cattle	421	305	352	0	0	425	78	83	388
Dry Creek	cattle	2649	1449	2224	0	330	2044	16	69	1518
Ear Creek	cattle	388	388	345	0	56	656	0	0	431
East Fork	cattle	435	520	284	0	370	580	0	28	523
	sheep	291	66	285	0	66	194			1162
Elk Creek	cattle	222	88	180	0	4	128	2	4	92
Elk Mountain	cattle	308	127	255	0	37	184	21	23	136
Elkhorn	cattle	16	16	12	0	16	27	0	0	166
	sheep	332	332	170	0	332	540			429
Fairfield	cattle	74	74	59	0	9	114	1	0	84
Flat Top Sheep Co.	cattle	1675	3255	1970	0	1308	4061	39	105	3736
	sheep	2665	1000	379	0	600	1100			4358
Fork	cattle	0	7	0	0	5	25	0	0	4
H & S	cattle	30	30	29	0	25	71	0	0	60
Hailey Creek	sheep	368	368	99	0	252	649	0	0	812
Hatty Creek	sheep	31	31	11	0	10	43	3	5	44
Homestead	cattle	10	10	6	0	6	23	1	1	18
Hot Springs	cattle	112	67	87	0	67	132	0	0	67 4/

TABLE 4-25 (cont.)

FORAGE ALLOCATION ON PUBLIC LANDS BY ALLOTMENT

Allotment Name	Kind of Livestock	Active Preference (AUMs)	Proposed Stocking Rates (AUMs)					Competitive Wildlife Needs (AUMs)		Inventoried Grazing Capacity (AUMs) 2/
			Proposed Action	No Change 1/	No Grazing	Lower Stocking	Greater Production	1980	1990	
Hyndman	cattle	33	33	32	0	33	64	9	15	51
Indian Creek	cattle	792	412	423	0	292	412	0	0	412
	sheep	720	720	212	0	720	1085			1848
Iron Mine	sheep	923	923	776	0	923	1300	0	0	1938
Kent Canyon	cattle	236	343	243	0	271	382	5	5	389
	sheep	334	100	47	0	100	46			276
Lake Creek	sheep	174	174	5	0	174	440	4	7	444
Lava Lake	cattle	734	734	741	0	734	1320	0	0	1055
Little	cattle	74	59	74	0	5	69	0	1	60
Little Beaver	cattle	109	109	112	0	3	128	358	441	850
	sheep	590	590	294	0	0	654			912
Little Fish Creek	cattle	195	162	195	0	74	199	11	13	162 4/
Little Rock Creek	cattle	48	48	41	0	48	121	1	2	56
Little Wood	sheep	538	401	382	0	189	417	7	24	425
Lower Rock Creek	cattle	709	495	511	0	307	596	4	10	505
	sheep trail	0	45	36	0	45	50			45
Martin Canyon	sheep	404	404	131	0	404	748	79	444	827
McAtee	cattle	36	0	7	0	0	0	0	0	--- 5/
McFarland	cattle	84	84	90	0	9	111	1	2	91
McHan Creek	cattle	63	39	64	0	5	55	1	1	39
Mill Canyon	cattle	44	28	37	0	2	39	5	6	33
Mountain View	cattle	30	17	30	0	2	23	0	0	17
Muldoon	cattle	1020	400	317	0	200	400	242	276	782
	sheep	88	708	600	0	438	822			1478
Muldoon Canyon	cattle	420	276	260	0	155	370	0	100	276
	sheep	1066	480	89	0	480	560			922
North 40	sheep	40	36	24	0	12	36	4	6	38
Phillips Creek	cattle	26	20	26	0	4	24	0	0	21
Piney	cattle	84	43	57	0	2	62	0	0	45
Poison Creek	cattle	766	497	600	0	80	903	22	39	560
	sheep	133	92	50	0	92	154			919
Poverty Flat	cattle	7	0	0	0	0	0	0	0	0
Powell Creek	cattle	36	17	25	0	6	25	1	1	18
Queens Crown	cattle	715	396	339	0	30	440	0	4	400 4/
Quigley	sheep	739	739	453	0	739	1253	28	182	1281
Red Elephant	cattle	36	36	7	0	36	36	1	25	110
	sheep	113	113	79	0	113	285			339
Road Canyon	cattle	543	379	379	0	153	454	0	1	380 4/
Roanhide	sheep	120	120	24	0	44	192	44	57	755
Rocky Bar	cattle	120	120	120	0	89	120	0	0	120 4/
	sheep	114	2	3	0	2	2			228
Rota Run	sheep	23	23	27	0	19	73	3	14	59
Rough Creek	cattle	460	391	442	0	33	424	20	26	418

TABLE 4-25 (cont.)

FORAGE ALLOCATION ON PUBLIC LANDS BY ALLOTMENT

Allotment Name	Kind of Livestock	Active Preference (AUMs)	Proposed Stocking Rates (AUMs)					Competitive Wildlife Needs (AUMs)		Inventoried Grazing Capacity (AUMs) 2/
			Proposed Action	No Change 1/	No Grazing	Lower Stocking	Greater Production	1980	1990	
Scattered Tracts	cattle	78	43	47	0	8	73	1	0	43
Severe	cattle	29	29	0	0	0	49	0	0	27
Shale	cattle	106	62	105	0	62	84	1	1	63
Sheep Creek	sheep	705	705	321	0	483	705	0	54	972
Sheep Point	cattle	90	71	91	0	6	103	15	15	85
Sheep Trail	sheep trail	0	158	20	0	134	190	14	19	177
Shirley	cattle	43	0	30	0	0	2	2	2	2
Silver Creek	cattle	500	250	196	0	99	325	0	0	250 4/
Simpson	sheep	32	22	0	0	22	18	0	0	24
Slaughterhouse	sheep	670	622	290	0	622	676	5	5	681
Soldier	sheep	80	80	24	0	15	145	12	18	699
South East Fork	sheep	146	146	100	0	146	309	2	6	311
South 120	sheep	40	28	40	0	2	30	10	12	30
Spring Creek	cattle	88 3/	75	75	0	75	97	45	49	143
	sheep		13	14	0	13	64			406
Square Mountain	cattle	29	29	29	0	29	55	2	3	39
Stocking	cattle	90 3/	90	54	0	90	310	0	5	219
	sheep		0	72	0	0	0			433
Telfer	cattle	0	0	8	0	0	0	0	2	31
	sheep	39	39	8	0	37	40			40
Three Mile	cattle	19	13	19	0	0	17	0	0	13
Timber Butte	cattle	900	540	501	0	507	728	7	20	559
Timber Gulch	sheep	136	136	48	0	136	474	39	63	513
Trail Creek	cattle	321	321	303	0	100	321	0	0	360
	sheep	285	285	23	0	157	285			600 4/
Upper Fish Creek	sheep	189	189	53	0	189	500	0	35	521
Upper Rock Creek	sheep	788	788	188	0	658	892	37	77	929
Upper Slaughterhouse	sheep	217	207	36	0	107	210	2	5	219
Water Gulch	sheep	223	128	112	0	128	130	0	2	130
West Bellevue	cattle	444	444	327	0	366	444	0	0	625
	sheep	535	535	283	0	461	930			1371
West Fork Fish Creek	cattle	77	77	26	0	20	85	0	10	169
	sheep	196	156	56	0	49	195			327
Willow Creek	cattle	71	40	71	0	0	52	0	0	40 4/
Wolftone	sheep	9	9	4	0	9	79	3	6	82
Woodbury	cattle	125	84	119	0	8	88	0	0	84 4/
Total	cattle and sheep	36,504	29,877	23,067	0	18,228	41,261	1,705	3,144	---- 2/

1/ The AUMs under this alternative are based on the average actual use from 1975 through 1979.
2/ These AUMs represent the maximums for either cattle or sheep, not combinations of the two. The numbers are therefore not additive.
3/ These AUMs have historically been used by sheep and/or cattle without conversion restrictions.
4/ These grazing capacities have been adjusted from the original inventory, based on actual use, utilization, observed range condition, and/or other information.
5/ McAtee Allotment is to be transferred into private ownership under the Unintentional Agricultural Trespass Act and therefore was not inventoried.

TABLE 4-26

EXPECTED STOCKING RATE AFTER 20 YEARS

Allotment	Kind of Livestock	Active Preference	Proposed Action	Alternative 1 No Change 1/	Alternative 2 No Grazing	Alternative 3 Lower Stocking	Alternative 4 Greater Production
Baird	Cattle	135 2/	43	34	0	43	37
	Sheep		103	23	0	103	117
Baptie	Cattle	128 2/	0	8	0	0	0
	Sheep		131	32	0	58	155
Barton	Cattle	100	62	100	0	21	111
Base Line	Cattle	138	141	131	0	44	229
Bennett	Cattle	62	62	25	0	4	62
Big Beaver	Cattle	144	0	130	0	0	0
	Sheep	201	137	82	0	0	369
Brock Creek	Cattle	19	20	12	0	18	56
Bullion Gulch	Sheep	274	269	104	0	276	342
Camp Creek	Cattle	363	352	364	0	90	519
	Sheep	89	127	92	0	89	253
Cherry Creek	Sheep	150	60	51	0	3	117
Colorado Gulch	Sheep	27	28	13	0	31	167
Cottonwood	Sheep	288	288	220	0	288	624
Courier	Cattle	58	73	56	0	67	132
Cove	Cattle	1302	597	659	0	354	711
Cow Creek	Cattle	0	150	0	0	104	286
	Sheep	134	0	134	0	0	0
Crater	Sheep	396	396	361	0	313	455
Croy Creek	Cattle	267	1075	960	0	530	1075
	Sheep	1064	416	311	0	401	860
	Sheep Trail	0	28	25	0	27	28
Deer Creek (SV)	Cattle	299	338	296	0	335	635
Deer Creek (NC)	Cattle	421	320	352	0	0	455
Dry Creek	Cattle	2649	1884	2224	0	353	2351
Ear Creek	Cattle	388	426	345	0	67	728
East Fork	Cattle	435	619	284	0	407	748
	Sheep	291	79	285	0	72	250
Elk Creek	Cattle	222	95	180	0	5	134
Elk Mountain	Cattle	308	174	255	0	43	280
Elkhorn	Cattle	16	16	12	0	16	29
	Sheep	332	339	170	0	339	589
Fairfield	Cattle	74	84	59	0	10	132
Flat Top Sheep Co.	Cattle	1675	3515	1970	0	1478	3980
	Sheep	2665	1080	379	0	678	1078
Fork	Cattle	0	8	0	0	6	19
H & S	Cattle	30	32	29	0	28	80
Hailey Creek	Sheep	368	368	99	0	272	649
Hatty Creek	Sheep	31	33	11	0	11	51
Homestead	Cattle	10	10	6	0	7	24
Hot Springa	Cattle	112	75	87	0	73	128
Hyndman	Cattle	33	47	32	0	36	65
Indian Creek	Cattle	792	445	423	0	318	466
	Sheep	720	778	212	0	785	1226

TABLE 4-26 (cont.)

EXPECTED STOCKING RATE AFTER 20 YEARS

Allotment	Kind of Livestock	Active Preference	Proposed Action	Alternative 1 No Change 1/	Alternative 2 No Grazing	Alternative 3 Lower Stocking	Alternative 4 Greater Production
Iron Mine	Sheep	923	923	776	0	923	1300
Kent Canyon	Cattle	236	460	243	0	301	497
	Sheep	334	134	47	0	111	60
Lake Creek	Sheep	174	177	5	0	174	449
Lava Lake	Cattle	734	778	741	0	734	1201
Little	Cattle	74	64	74	0	6	89
Little Beaver	Cattle	109	109	112	0	3	173
	Sheep	590	590	294	0	0	883
Little Fish Creek	Cattle	195	181	195	0	86	231
Little Rock Creek	Cattle	48	60	41	0	52	110
Little Wood	Sheep	538	401	382	0	204	417
Lower Rock Creek	Cattle	709	535	511	0	341	685
	Sheep Trail	0	49	36	0	50	58
Martin Canyon	Sheep	404	416	131	0	404	755
McAtee	Cattle	36	0	7	0	0	0
McFarland	Cattle	84	93	90	0	10	127
McHan Creek	Cattle	63	42	64	0	5	66
Mill Canyon	Cattle	44	29	37	0	2	46
Mountain View	Cattle	30	20	30	0	2	25
Muldoon	Cattle	1020	400	317	0	216	520
	Sheep	88	708	600	0	473	1069
Muldoon Canyon	Cattle	420	290	260	0	169	426
	Sheep	1066	504	89	0	523	644
North 40	Sheep	40	39	24	0	13	46
Phillips Creek	Cattle	26	20	26	0	4	28
Piney	Cattle	84	45	57	0	2	66
Poison Creek	Cattle	766	547	600	0	91	984
	Sheep	133	101	50	0	105	168
Poverty Flat	Cattle	7	0	0	0	0	0
Powell Creek	Cattle	36	18	25	0	7	31
Queens Crown	Cattle	715	424	339	0	35	554
Quigley	Sheep	739	754	453	0	761	1378
Red Elephant	Cattle	36	37	7	0	37	33
	Sheep	113	116	79	0	116	262
Road Canyon	Cattle	543	398	379	0	165	558
Roanhide	Sheep	120	132	24	0	48	232
Rocky Bar	Cattle	120	120	120	0	93	120
	Sheep	114	2	3	0	2	2
Rota Run	Sheep	23	24	27	0	20	58
Rough Creek	Cattle	460	438	442	0	38	577
Scattered Tracts	Cattle	78	46	47	0	8	82
Severe	Cattle	29	30	0	0	0	54
Shale	Cattle	106	70	105	0	64	89
Sheep Creek	Sheep	705	705	321	0	522	797

TABLE 4-26 (cont.)

EXPECTED STOCKING RATE AFTER 20 YEARS

Allotment	Kind of Livestock	Active Preference	Proposed Action	Alternative 1 No Change 1/	Alternative 2 No Grazing	Alternative 3 Lower Stocking	Alternative 4 Greater Production
Sheep Point	Cattle	90	75	91	0	7	118
Sheep Trail	Sheep Trail	0	158	20	0	139	175
Shirley	Cattle	43	0	30	0	0	2
Silver Creek	Cattle	500	263	196	0	107	390
Simpson	Sheep	32	22	0	0	22	19
Slaughterhouse	Sheep	670	641	290	0	622	723
Soldier	Sheep	80	83	24	0	17	168
South East Fork	Sheep	146	164	100	0	164	402
South 120	Sheep	40	30	40	0	2	29
Spring Creek	Cattle	88 2/	77	75	0	77	78
	Sheep		13	14	0	13	51
Square Mountain	Cattle	29	31	29	0	31	60
Stocking	Cattle	90 2/	97	54	0	97	248
	Sheep		0	72	0	0	0
Telfer	Cattle	0	0	8	0	0	0
	Sheep	39	40	8	0	43	39
Three Mile	Cattle	19	14	19	0	0	20
Timber Butte	Cattle	900	599	501	0	553	815
Timber Gulch	Sheep	136	139	48	0	139	493
Trail Creek	Cattle	321	327	303	0	110	434
	Sheep	285	291	23	0	173	388
Upper Fish Creek	Sheep	189	193	53	0	193	470
Upper Rock Creek	Sheep	788	812	188	0	697	1106
Upper Slaughterhouse	Sheep	217	217	36	0	118	288
Water Gulch	Sheep	223	141	112	0	132	172
West Bellevue	Cattle	444	484	327	0	410	533
	Sheep	535	583	283	0	516	1116
West Fork Fish Creek	Cattle	77	80	26	0	23	87
	Sheep	196	162	56	0	55	199
Willow Creek	Cattle	71	43	71	0	0	56
Wolftone	Sheep	9	9	4	0	9	84
Woodbury	Cattle	125	90	119	0	9	102
Total		36,504	32,230	23,067	0	19,601	45,617

1/ This stocking rate is based on 1975-1979 actual use, not the active preference. This stocking rate is the same as that proposed for the No Change alternative in Table 4-25. The stocking rate may not be consistent with the expected range forage production.
2/ These AUMs have historically been used by sheep and/or cattle without conversion restrictions.

SOCIAL VALUES AND ATTITUDES

This discussion is based on generalizations obtained from interviews with SVPA residents, input received from public participation activities, and the Sun Valley Planning Area Analysis.

The No Grazing alternative, and to a lesser extent the Lower Stocking alternative and the proposed action, could cause those individuals deriving their livelihood from ranch-related activities to experience a reduction in their sense of social well-being because of a greater emphasis on multiple use and the proposed changes in stocking rates.

Multiple use of public lands threatens rancher's feelings of independence and their traditional use of the land. Changes in management required to implement the proposed action or alternatives further threatens independence as well as traditional methods of operations. Reductions in stocking rates could cause economic losses for some, both in ranch income and the ability to borrow money.

However, neither the proposed action nor the alternatives would measurably affect the social systems of the SVPA.

ECONOMICS

Consequences of the Proposed Action

Livestock-Related

The proposed action represents an overall 19 percent reduction from active preference. This varies by herd size grouping from a 39 percent reduction for cattle group 3 (300-999 brood cows) to an increase of 31 percent for cattle group 4 (1000 brood cows or more). The overall proposed change from the five-year average actual use is an increase of 29 percent. This also varies greatly by size group with cattle group 3 receiving an 8 percent reduction and sheep group 3 receiving an 81 percent increase (Table 4-27).

TABLE 4-27

AUM CHANGES BY HERD-SIZE GROUPING
FOR THE PROPOSED ACTION

Group and Herd Size	Number of Permittees	Active Preference (AUMs)	5-Year Average Use 1/ (AUMs)	Proposed Use 2/ (AUMs)	Change from Active Preference (AUMs)	Change from Active Preference Percent	Change from Average Use (AUMs)	Change from Average Use Percent
Cattle 1 0-99	26	3885	2556	2676	-1209	-31	+120	+ 5
Cattle 2 100-299	26	6138	3964	4299	-1839	-30	+335	+ 8
Cattle 3 300-999	10	5689	3797	3479	-2210	-39	-318	- 8
Cattle 4 1000+	9	5222	5489	6846	+1624	+31	+1357	+25
Subtotal	71	20934	15806	17300	-3634	-17	+1494	+ 9
Sheep 1 0-2499	11	3526	2054	3513	- 13	0	+1459	+71
Sheep 2 2500-4999	4	2255	1221	1886	- 369	-16	+ 665	+55
Sheep 3 5000+	5	9789	3836	6945	-2844	-29	+3109	+81
Subtotal	20	15570	7111	12344	-3226	-21	+5233	+74
TOTAL	83 3/	36504	22917	29644	-6860	-19	+6727	+29

1/ The figures shown do not include trail use.
2/ For comparative purposes, the AUMs for Fork and Sheep Trail allotments, which are presently unallotted, were not included.
3/ Eight permittees have both cattle and sheep preference.

Linear programming was used to determine what effect these changes in AUM levels would have on rancher income. Linear programming is a technique which optimizes a particular function; in this case the allocation of resources to various activities. A more complete description of this process can be found in Appendix 9. The results of the linear programming analysis are shown in Table 4-28. The total annual income change would be a loss of approximately $5,000. Additional AUMs above the amount currently used would result in lost income for some ranchers, because of the need to increase herd size, with resultant yearlong expenses, to take advantage of the extra AUMs. If ranchers whose income would be reduced by utilizing

these extra AUMs did not do so, the total annual income change would be a gain of $47,000. A loss of $5,000 would represent less than 1 percent of the SVPA ranch income.

TABLE 4-28

SVPA RANCHER INCOME CHANGES
IN THE SHORT TERM
DUE TO THE PROPOSED ACTION

Size Group	Change/Permittee (dollars)	Total Change (dollars)
Cattle 1	-$ 15	-$ 390
Cattle 2	+$1,191	+$30,966
Cattle 3	-$ 276	-$ 2,760
Cattle 4	-$1,691	-$15,219
Subtotal	---	+$12,987
Sheep 1	-$3,082	-$33,902
Sheep 2	-$ 770	-$ 3,080
Sheep 3	+$3,726	+$18,630
Subtotal	---	-$18,352
TOTAL	---	-$ 5,365

Source: Linear Programming Analysis; Economics, Statistics, and Cooperatives Service, USDA 1980.

Implementing range improvements would increase the number of AUMs available to ranchers. By the tenth year following implementation, and continuing into the long term, about 40 percent more AUMs would be available than the permittees' five-year average actual use has been, but this would still be 12 percent below the current active preference. This gain would translate into an income increase of $126,000 annually to SVPA permittees.

Regional Income

About $427,000 would be spent over three years to install management facilities and perform land treatments. It is anticipated that about 20 percent, or $87,000, of this would be spent in the regional economy. As

the facilities are installed maintenance costs would increase until the fourth year when the added annual maintenance costs would be $10,000. Sixty percent, or $6,000, would be spent in the regional economy annually.

Some additonal regional income would be generated through increased recreation opportunities. The increases in recreation use would result in an annual income gain of $79,000 by 1990. See Appendix 9 for an explanation of how these recreation income data were derived.

The direct impacts to rancher income and the direct impacts from range improvements and recreation would lead to an additional, or secondary, impact throughout the rest of the regional economy. Initially this would be a gain of approximately $3,000 through all sectors of the economy. By the tenth year following implementation there would be an additional gain of about $77,000. These impacts have been estimated with the use of a computerized regional economics model called DYRAM. See Appendix 9 for a detailed explanation of this model.

For comparative purposes the regional-income impacts of each alternative have been discounted to their net present worth. Discounting is a procedure that allows comparisons of differing income streams by accounting for the time value of money. A detailed explantion of this process can be found in Appendix 9. The net present worth of the regional income changes associated with the proposed action would be +$1.1 million.

Employment

The initial loss of livestock income would not effect employment. In the long term (after ten years) there would be direct gains of eleven jobs and secondary gains of six jobs. It is anticipated that these losses/gains in employment would take the form of part-time or seasonal jobs.

Ranch Consolidation and Conversion

Ranch consolidation and conversion out of agriculture would probably continue in the SVPA, but implementing the proposed action would not significantly affect or add to these occurrences.

Capital Position

Because reduction in permits or permit values are measured against the total qualified demand, the impact of the loss of capital assets in the form of Federal AUMs could be larger than the direct loss of income resulting from reductions measured against the five-year average use. Neilson and Workman (1971) speak to the point:

> Grazing permits held today represent an asset which a rancher can borrow against or sell in the market. If this asset becomes non-saleable, the rancher has lost the opportunity of marketing a valuable asset. . . . If the permit is reduced, the value of the permit is also reduced and the rancher has lost a capital asset which previously could have been sold, or at the least, been used as collateral for securing loans.

In addition, any impacts in this area would occur when a rancher sells his ranch, his grazing permit, or uses the Federal AUMs for collateral when obtaining a loan.

The BLM does not officially recognize that grazing permits have attained a capitalized value and are bought and sold on the marketplace.

Consequences of the No Change Alternative

This alternative would have no impacts on the income of the ranchers in the SVPA, nor on the three-county regional income.

This alternative would have no impact on employment in the local economy.

No consolidation of ranches or conversion of ranch property to other uses would occur, and the capital position of ranchers in the SVPA would be unaffected.

Consequences of the No Grazing Alternative

This alternative would impose 100 percent AUM reductions on all permittees in the SVPA and would cause them to lose about $241,000 annually (Table 4-29). This would represent 13 percent of the SVPA ranch income, 3 percent of regional livestock income, and 2 percent of the region's farm income.

TABLE 4-29

SVPA RANCHER INCOME CHANGES
IN THE SHORT TERM
DUE TO THE NO GRAZING ALTERNATIVE

Size Group	Change/Permittee (dollars)	Total Change (dollars)
Cattle 1	-$1,265	-$32,890
Cattle 2	-$2,228	-$57,928
Cattle 3	-$3,444	-$34,440
Cattle 4	-$4,023	-$36,207
Subtotal	---	-$161,465
Sheep 1	-$3,873	-$42,603
Sheep 2	-$3,457	-$13,828
Sheep 3	-$4,543	-$22,715
Subtotal	---	-$79,146
TOTAL	---	-$240,611

Source: Linear Programming Analysis; Economics, Statistics, and Cooperatives Service, USDA 1980.

This reduction in AUMs would continue throughout the life of the alternative.

Regional Income

Some additional regional income would be generated by increased recreation opportunities. The increases in recreation use would result in an income increase of $109,000 annually by 1990.

The direct impacts to ranchers' income and from increased recreation would lead to an additional, or secondary, impact throughout the regional economy. Initially, this loss would be approximately $94,000 through all sectors of the economy. Due to recreation gains this loss would be gradually reduced until the tenth year when it would be $64,000 annually.

The net present worth of the regional income changes associated with this alternative would be -$2.2 million.

Employment

The initial loss in livestock income would result in the loss of twelve direct jobs and seven secondary jobs. By the tenth year these losses would be reduced to seven direct and five secondary jobs.

Ranch Consolidation and Conversion

Although this alternative would create pressure for consolidations and conversions, it is not anticipated that its implementation would significantly add to these occurrences.

Capital Position

This alternative would affect capital position more severely than any of the others. The loss of all AUMs could significantly impact the ranchers' ability to secure loans and/or reduce the value of the ranches for selling purposes. It is not possible to quantify the actual amount of this impact.

Consequences of the Lower Stocking Alternative

This alternative represents an overall 51 percent reduction from active preference and would vary by size group from a reduction of 69 percent for cattle groups 1 and 2 to a reduction of 28 percent for sheep group 1. The overall change from five-year average actual use would amount to a reduction of 21 percent. This also would vary greatly by size group; cattle groups 1 and 2 would experience a 52 percent reduction while sheep group 3 would receive a 43 percent increase (Table 4-30). The results of the linear programming analysis for this alternative are shown in Table 4-31. Income changes to area ranchers are based on the percentage change in AUM level as measured against the five-year average actual use. The total annual income change would be a loss of $84,000. With the exception of sheep group 3, this analysis shows that additional AUMs above average use results in lost income to the ranchers. This occurs due to the need to increase herd size, with resultant yearlong expenses, to take advantage of the extra AUMs. If ranchers whose income would be reduced by using these extra AUMs did not do so, then the annual loss of income would drop to $72,000. The

annual loss of $84,000 represents 4 percent of the SVPA ranch income, 1 percent of the regional livestock income, and 1 percent of the regional farm income.

TABLE 4-30

AUM CHANGES BY HERD-SIZE GROUPING
FOR THE LOWER STOCKING ALTERNATIVE

Group and Herd Size	Number of Permittees	Active Preference (AUMs)	5-Year Average Use 1/ (AUMs)	Proposed Use 2/ (AUMs)	Change from Active Preference (AUMs)	Change from Active Preference Percent	Change from Average Use (AUMs)	Change from Average Use Percent
Cattle 1								
0-99	26	3885	2556	1230	-2665	-69	-1326	-52
Cattle 2								
100-299	26	6138	3964	1898	-4240	-69	-2066	-52
Cattle 3								
300-999	10	5689	3797	2239	-3450	-61	-1558	-41
Cattle 4								
100+	9	5222	5489	3294	-1928	-37	-2195	-40
Subtotal	71	20934	15806	8661	-12273	-59	-7145	-45
Sheep 1								
0-2499	11	3526	2054	2540	- 986	-28	+ 486	+24
Sheep 2								
2500-4999	4	2255	1221	1346	- 909	-40	+ 125	+10
Sheep 3								
5000+	5	9789	3836	5474	-4315	-44	+1638	+43
Subtotal	20	15570	7111	9360	-6210	-40	+2249	+32
TOTAL	83 3/	36504	22917	18021	-18483	-51	-4896	-21

1/ The figures shown do not include trail use.
2/ For comparative purposes, the AUMs for Fork and Sheep Trail allotments, which are presently unallotted, were not included.
3/ Eight permittees have both cattle and sheep AUMs.

TABLE 4-31

SVPA RANCHER INCOME CHANGES
IN THE SHORT TERM
DUE TO THE LOWER STOCKING ALTERNATIVE

Size Group	Change/Permittee (dollars)	Total Change (dollars)
Cattle 1	-$ 575	-$14,950
Cattle 2	-$1,252	-$32,552
Cattle 3	-$1,412	-$14,120
Cattle 4	-$2,226	-$20,034
Subtotal	---	-$81,656
Sheep 1	-$1,027	-$11,300
Sheep 2	-$ 143	-$ 570
Sheep 3	+$1,957	+$ 9,790
Subtotal	---	-$ 2,080
TOTAL	---	-$83,736

Source: Linear Programming Analysis; Economics, Statistics, and Cooperatives Service, USDA 1980.

Implementing range improvements would increase the number of AUMs available to ranchers. By the tenth year following implementation, and continuing in the long term, about 3000 additional AUMs would be available, reducing the average loss to 14 percent. This would reduce the annual income loss to about $51,000.

Regional Income

Approximately $212,000 would be spent over three years to complete range improvements associated with this alternative. It is anticipated that about 24 percent, or $51,000, of this total would be spent in the regional economy. As the improvements are completed, maintenance costs would increase until the fourth year when the added annual maintenance costs would be $8,000. Sixty percent, or $5,000, would be spent annually in the regional economy.

Some additional regional income would be generated by increased recreation opportunities. These increases would result in an annual income gain of $79,000 by 1990.

The direct impacts to rancher income and from range improvements and recreation would lead to an additional, or secondary impact throughout the rest of the regional economy. Initially, this secondary loss would be approximately $30,000 through all sectors of the economy. By the tenth year this annual secondary loss would become a gain of $5,000.

The net present worth of the regional income changes associated with this alternative would be -$285,000.

Employment

The initial loss in livestock income would result in the loss of four jobs. Secondary losses would result in the loss of three more jobs. After ten years there would be a net gain of two jobs. It is anticipated that these losses/gains in employment would take the form of part-time or seasonal jobs.

Ranch Consolidation and Conversion

Ranch consolidation and conversion would not be significantly affected by this alternative.

Capital Position

Capital position would be affected more by this alternative than the proposed action, but not as severely as the No Grazing alternative. It is not possible to quantify the actual magnitude of this impact.

Consequences of the Greater Production Alternative

This alternative calls for an overall increase in active preference of 12 percent. This varies by size group from a reduction of 17 percent in cattle group 3 to an increase of 70 percent in cattle group 4. The overall change from five-year average actual use is an increase of 79 percent. This change also varies greatly by size group with cattle group 3 gaining

25 percent and sheep group 3 gaining 184 percent (Table 4-32). The results of the linear programming analysis for this alternative are shown in Table 4-33. Income changes to area ranchers are based on the percentage change in AUM level as measured against the five-year average actual use. The total annual income change for this alternative would be a gain of $121,000. If those permittees who would lose income by utilizing additional AUMs (above average use) did not do so, then income would increase by $224,000 annually. The annual gain of $121,000 represents 6 percent of the SVPA ranch income, 2 percent of the regional livestock income, and 1 percent of the region's farm income.

TABLE 4-32

AUM CHANGES BY HERD-SIZE GROUPING
FOR THE GREATER PRODUCTION ALTERNATIVE

Group and Herd Size	Number of Permittees	Active Preference (AUMs)	5-Year Average Use 1/ (AUMs)	Proposed Use 2/ (AUMs)	Change from Active Preference (AUMs)	Change from Active Preference Percent	Change from Average Use (AUMs)	Change from Average Use Percent
Cattle 1 0-99	26	3885	2556	3292	- 593	-15	+ 736	+29
Cattle 2 100-299	26	6138	3964	5801	- 337	- 5	+1837	+46
Cattle 3 300-999	10	5689	3797	4731	- 958	-17	+ 934	+25
Cattle 4 1000+	9	5222	5489	8919	+3697	+70	+3430	+62
Subtotal	71	20934	15806	22743	+1809	+ 9	+6937	+44
Sheep 1 0-2499	11	3526	2054	4459	+ 933	+26	+2405	+117
Sheep 2 2500-4999	4	2255	1221	2851	+ 596	+26	+1630	+133
Sheep 3 5000+	5	9789	3836	10913	+1124	+11	+7077	+184
Subtotal	20	15570	7111	18223	+2653	+17	+11112	+156
TOTAL	83 3/	36504	22917	40966	+4462	+12	+18049	+ 79

1/ The figures shown do not include trail use.
2/ For comparative purposes, the AUMs for Fork and Sheep Trail allotments, which are presently unallotted, were not included.
3/ Eight permittees have both cattle and sheep AUMs.

TABLE 4-33

SVPA RANCHER INCOME CHANGES
IN THE SHORT TERM
DUE TO THE GREATER PRODUCTION ALTERNATIVE

Size Group	Change/Permittee (dollars)	Total Change (dollars)
Cattle 1	-$ 83	-$ 2,158
Cattle 2	+$6,849	+$178,074
Cattle 3	+$ 449	+$ 4,490
Cattle 4	-$4,194	-$ 37,746
Subtotal	---	+$142,660
Sheep 1	-$5,050	-$ 55,550
Sheep 2	-$1,895	-$ 7,580
Sheep 3	+$8,372	+$ 41,860
Subtotal	---	-$ 21,270
TOTAL	---	+$121,390

Source: Linear Programming Analysis; Economics, Statistics, and Cooperatives Service, USDA 1980.

Implementing range improvements would increase the number of AUMs available to ranchers. By the tenth year following implementation of this alternative, and continuing into the long term, 17 percent more AUMs than the initial allocation would be available. This would be 100 percent greater than the permittees' five-year average actual use and 32 percent greater than their current active preference. Such a gain in AUMs would translate into a long-term annual income gain of $307,000 to SVPA permittees.

Regional Income

Approximately $1.1 million would be spent over three years to install management facilities and perform land treatments. It is anticipated that about 17 percent, or $190,000, of this total would be spent in the regional economy. As the improvements are installed maintenance costs would increase until the fourth year when the added annual maintenance costs would be $11,000. Sixty percent, or $6,300, would be spent annually in the regional economy.

This alternative would decrease recreation opportunities in the SVPA. These decreases would result in an annual income loss of $36,000 by 1990.

The direct impacts to ranchers' income and from range improvements and recreation would lead to an additional, or secondary, impact through the rest of the regional economy. Initially this secondary impact would be an additional annual income gain of $52,000. By the tenth year these secondary gains would increase to $113,000 annually.

The net present worth of the regional income changes associated with this alternative would be +$2.2 million.

Employment

The initial gain in livestock income would result in seven additional jobs. Secondary gains would add five more jobs. After ten years employment would increse by fourteen jobs from the direct impacts and nine jobs from the secondary impacts.

Ranch Consolidation and Conversion

Ranch consolidation and conversion would not be affected by this alternative.

Capital Position

Capital position would be affected slightly but not as greatly as by the proposed action. It is not possible to quantify the magnitude of this impact.

TABLE 4-34

SUMMARY OF ECONOMIC IMPACTS OF THE
PROPOSED ACTION AND ALTERNATIVES

Element	Proposed Action	No Change	No Grazing	Lower Stocking	Greater Production
Livestock Income Change 1/					
Short Term	-$ 5,000	0	-$241,000	-$ 84,000	+$121,000
Long Term (after 10 years)	+$126,000	0	-$241,000	-$ 51,000	+$307,000
Other Regional Income 1/					
Range Improvements	+$ 87,000	0	0	+$ 51,000	+$190,000
Maintenance	+$ 6,000	0	0	+$ 5,000	+$ 6,300
Recreation	+$ 79,000	0	+$109,000	+$ 79,000	-$ 36,000
Secondary Income					
Short Term	+$ 3,000	0	-$ 94,000	-$ 30,000	+$ 52,000
Long Term	+$ 77,000	0	-$ 64,000	+$ 5,000	+$113,000
Employment 1/					
Short Term	0	0	-19	- 7	+12
Long Term	+17	0	-12	+ 2	+23
Ranch Consolidations	Insignificant	No Impact	Insignificant	Insignificant	No Impact
Capital Position 2/	3	5	1	2	4
Range Improvements					
Total Implementation	$426,960	0	0	$211,850	$1,110,300
Total Maintenance	$ 10,254	0	0	$ 8,000	$ 11,000
Regional Net Present Worth 3/	+$1,083,402	0	-$2,231,565	-$285,070	$2,167,058

1/ Figures are annual, recurring gains or losses.
2/ The impacts on capital position were assigned relative rankings where 1 is the worst and 5 is no impact.
3/ The discounting procedures used to calculate net present worth are described in Appendix 9.

UNAVOIDABLE ADVERSE IMPACTS

All of the mitigating measures presented in this EIS have been incorporated into the descriptions of the proposed action and alternatives. Therefore, assuming no additional mitigating measures would be taken, the environmental consequences described in this chapter must be considered "unavoidable" for each particular management option.

LONG-TERM PRODUCTIVITY

The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity is studied in detail throughout this EIS. The short-term uses for the proposed action and alternatives are described in Chapter 2. The long-term productivity of all resources would change under each management option, as indicated by the description of environmental consequences in this chapter. For a summary of long-term productivity, see the Comparative Analysis section and Table 2-2, both in Chapter 2.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Although some changes caused by the proposed action and alternatives would be difficult to restore or reverse in the short term, all impacts would be reversible in the long term. On the other hand, to implement the proposed action or an alternative, certain resources would be committed and would not be retrievable in the foreseeable future. The anticipated irretrievable commitments for the proposed action and/or one or more of the alternatives would include: (1) money, materials, fuel, and energy expended in management of livestock grazing and construction of range improvements; (2) loss of soil and/or productivity on localized areas because of livestock concentrations; (3) water and forage consumed by livestock or wildlife; (4) cultural resources damaged or destroyed; and (5) livestock production, income, and associated economic benefits lost or foregone.

CHAPTER 5

Consultation and Coordination

CHAPTER 5

CONSULTATION AND COORDINATION

LIST OF PREPARERS

In compliance with Section 1502.17 of Title 40 Code of Federal Regulations, the names and qualifications of the persons primarily responsible for preparing the Sun Valley Grazing Environmental Impact Statement are listed in Table 5-1.

PUBLIC PARTICIPATION

Land Use Planning

During the land use planning process for the SVPA, a wide variety of public involvement was encouraged. In 1978 a stratified sample consisting of 137 residents in the SVPA were contacted by telephone to respond to unstructured interviews and express any comments regarding management of the public land. In addition, personal interviews were conducted with 41 community leaders and agency representatives. Their responses were compared to those of the larger group, and all comments were utilized to identify issues, taylor inventories, and direct the land use planning.

Throughout the planning process, numerous items of information and comments were received from agencies, organizations, and individuals. A file containing all written comments and planning meeting reports is maintained at the Shoshone District Office.

EIS Scoping and Preparation

In July 1980, planning brochures were mailed to approximately 300 interested parties, describing the planning alternatives and requesting

additional comments on issues for this EIS. At the same time, each SVPA grazing permittee was mailed a "Rangeland Data Sheet" for the allotment(s) in which he holds grazing preference. Each data sheets presented allotment acreage, grazing suitability, stocking rate, season of use, grazing system, and adjustments in preference as described in this EIS. The permittees were encouraged to suggest changes or make other recommendations.

On August 5, 1980, a general public meeting was held to discuss the planning and to identify any additional issues for this EIS. In addition to BLM personnel, a total of 40 people attended the meeting.

Both the Shoshone District Advisory Council and the District Grazing Advisory Board have been consulted on EIS issues and informed of EIS progress. Also, the U.S. Fish and Wildlife Service has been consulted on threatened and endangered species, and the State Historic Preservation Officer has been consulted on cultural resources in the SVPA.

EIS Review

The draft EIS will be sent to all of the agencies, organizations, and persons listed in Table 5-2, plus everyone who requests a copy. A news release will be issued statewide announcing its availability. A minimum of two months will be provided for public review, and an open house will be held at the BLM District Office during the comment period to answer questions about the EIS. Substantive comments received on the draft will be printed with responses in the final EIS.

TABLE 5-1

LIST OF PREPARERS 1/

Name	EIS Responsibility	Education	Professional Experience
Michael L. Auatin	Drafting	Bachelor of Business Administration in Business Management, minor in Real Estate Management; 2 1/2 years in Architectural Engineering.	9 years BLM, USFS, and USAF Cartographic Technician; 5 years BLM Realty Specialist.
Dean Brown	Field-level Review	Bachelor of Science in Animal Husbandry Sciences, minor in Agricultural Economics.	4 years BLM Range Technician.
Paul S. Card	Sociology	Bachelor of Arts in Sociology and Math.	5 years Idaho Department of Transportation, 2 years Idaho Executive Office of the Governor, 1 year BLM Sociologist.
Joe Carter	Vegetation Descriptions	Bachelor of Science in Range Management.	2 years BLM Range Conservationist.
Terry Costello	Team Leader	Bachelor of Science in Forestry; Master of Science in Forest Recreation, minors in Ecology and Sociology.	2 years USFS and University of Minnesota Research Assistant, 1 year BLM Realty Specialist, 5 years BLM Outdoor Recreation Planner, 3 years BLM Planning and Environmental Coordinator.
Ervin R. Cowley	Proposed Action and Alternatives	Bachelor of Science in Range Management.	5 years BLM Range Conservationist, 4 years BLM Watershed Specialist, 2 years BLM Planning and Environmental Coordinator, 4 years BLM Area Manager.
Stanley C. Frazier	Economics	Bachelor of Science in Agricultural Economics.	6 years BLM Economist.
Karl A. Gebhardt	Water Resources	Bachelor of Science in Civil Engineering; Master of Arts in Environmental Engineering.	3 years BLM Environmental Engineer and Water Quality Specialist, 2 years BLM Hydrologist.
David B. Griggs	Vegetation Impacts	Bachelor of Science in Range and Forest Resource Management, 2 1/2 years graduate work in Range Resource Management.	2 years University of Montana, Range Research; 3 years Peace Corps, Resource Inventory Project; 3 years University of Idaho, Range Research; 5 years BLM Range Conservationist.
John A. Hanson	Writer/Editor and Cultural Resources	Bachelor of Arts in Anthropology; Master of Arts in Anthropology; Ph. D. in Archaeology.	4 years Field Museum of Natural History, Staff Assistant; 3 years Prescott College, Assistant Professor of Anthropology; 5 years BLM Archeologist.
William T. Harris	Soils and Watershed	Bachelor of Science in Soil and Water Science.	3 years SCS Soil Scientist, 2 years State of Idaho Soil Scientist, 2 years BLM Soil Scientist, 2 years BLM Soil and Watershed Specialist.
Robert B. Hellie	Recreation, Visual Resources, and Wilderness	Bachelor of Science in Political Science, Bachelor of Science in Outdoor Recreation/Forestry.	4 years Peace Corps, Park Management Specialist; 3 years BLM Outdoor Recreation Planner.
Larry S. Mangan	Wildlife	Bachelor of Science in Biology, 1 1/2 years graduate work in Wildlife Management.	8 years BLM Wildlife Biologist.
Richard W. Mayberry	Livestock Grazing and Alternatives	Bachelor of Science in Range Management.	4 years BLM Range Conservationist.
Derinda D. Rapp	Typist and Paperwork Manager	1 1/2 years college.	7 years BLM Grazing Clerk, Resource Data Assistant, Range Technician, Mail and File Clerk, and Editorial Clerk.
John F. Rice	BLM State Office Coordinator	Bachelor of Science in Forest Management.	2 years USFS Forester, 15 years BLM Forester, 4 years BLM Environmental Coordinator.

1/ Several additional individuals from the Cartographic Section of the BLM State Office prepared the maps in this EIS.

TABLE 5-2

AGENCIES, ORGANIZATIONS, AND PERSONS
TO WHOM THE EIS WILL BE SENT

Elected Federal Officials
- Senator James McClure
- Senator Steve Symms
- Congressman George Hansen

Elected State Officials
- Governor John V. Evans
- State Senators and Representatives for Districts 21 and 22

Federal Agencies
- Department of Agriculture
- Forest Service
- Soil Conservation Service
- Agricultural Stabilization and Conservation Service
- Wood River Resource Conservation & Development
- Fish and Wildlife Service
- National Park Service
- Geological Survey
- Army Corps of Engineers
- Environmental Protection Agency
- Heritage Conservation and Recreation Service
- Advisory Council on Historic Preservation

State of Idaho Agencies
- Department of Lands
- Department of Fish and Game
- Department of Parks and Recreation
- Transportation Department, Division of Highways
- Southcentral District Health Department
- Department of Water Resources
- State Clearinghouse
- Idaho Historical Society
- Department of Agriculture
- Region IV Development Association
- Soil Conservation Commission
- Bureau of Mines and Geology
- Department of Health and Welfare

Soil Conservation Districts
- Blaine
- Camas

TABLE 5-2 (cont.)

AGENCIES, ORGANIZATIONS, AND PERSONS
TO WHOM THE EIS WILL BE SENT

County Commissioners
- Blaine
- Butte
- Camas
- Elmore

County Agents
- Blaine
- Camas

Planning and Zoning Commissions
- Blaine
- Camas

City Mayors
- Hailey
- Ketchum
- Bellevue
- Sun Valley
- Fairfield

Organizations
- Natural Resources Defense Council, Inc.
- Sierra Club
- Idaho Conservation League
- The Nature Conservancy
- Public Lands Council
- Environment West
- Idaho Trail Machine Association
- Magic Valley Trail Machine Association
- Wood River Recreation Association
- Sawtooth Snowmobile Club
- Twin Falls Fish and Wildlife Conservation Corp.
- Idaho Wildlife Federation
- Big Wood Canal Company
- Idaho Cattlemen's Association
- Idaho Woolgrowers Association
- Blaine County Cattlemen's Association
- Idaho Rangeland Committee
- Sawtooth Graziers
- University of Idaho
- Idaho State University
- Wildlife Management Institute
- National Audubon Society
- Blaine County Resource Council

TABLE 5-2 (cont.)

AGENCIES, ORGANIZATIONS, AND PERSONS
TO WHOM THE EIS WILL BE SENT

Organizations (cont.)
- Federal Land Bank Association of Gooding
- Southern Idaho Production Credit Association
- First Security Bank of Idaho
- The Wilderness Society
- American Fisheries Society
- The Wildlife Society
- Greater Snake River Land Use Congress
- League of Women Voters
- Ada County Fish & Game League
- Trout Unlimited, Inc.
- The Izaak Walton League of America
- Idaho Farm Bureau Federation
- Idaho Cattle Feeder's Association, Inc.
- Defenders of Wildlife
- Utah State University

District Advisory Council
- (Eleven members)

District Grazing Advisory Board
- (Five members)

Grazing Permittees and Lessors
- (97 in the SVPA)

Other Individuals
- (Approximately 40 on mailing list)

A

APPENDICES

APPENDIX 1

GRAZING MANAGEMENT AND RANGE IMPROVEMENTS

This appendix consists of five tables. The first (Table A1-1) lists all the allotments in the SVPA and their acreages by land ownership status. The second (Table A1-2) presents an allotment-by-allotment listing of the proposed grazing management (kind of livestock, stocking rate, seasons of use, and grazing system) for the proposed action and three alternatives. The No Grazing alternative has been omitted because no grazing management would occur. Data for the proposed action and No Change alternative are shown on the left-hand pages; data for the Lower Stocking and Greater Production alternatives are shown on the right-hand pages.

The third table (Table A1-3) lists the kind and amount of range improvements, the year in which they would be scheduled, and their costs, by allotment, for the proposed action and the two alternatives that would include range improvements. A summary of the amount and costs of range improvements, by year, is shown in Table A1-4. The fifth table (Table A1-5) lists the acres of (1) public land, (2) severe erosion hazard areas, (3) unsuitable land, and (4) land available for livestock grazing in each allotment under the Lower Stocking alternative.

TABLE A1-1

LAND OWNERSHIP BY ALLOTMENT
IN THE SUN VALLEY PLANNING AREA

ALLOTMENT NAME	PUBLIC LAND (Acres)	STATE LAND (Acres)	PRIVATE LAND (Acres)	TOTAL OF ALL LANDS (Acres)
Baird	620	637	2,630	3,887
Baptie	799	400	2,082	3,281
Barton	880	-0-	1,112	1,992
Base Line	863	15	1,959	2,837
Bennett	200	-0-	303	503
Big Beaver	1,907	640	738	3,285
Brock Creek	160	-0-	724	884
Bullion Gulch	1,454	-0-	1,111	2,565
Camp Creek	2,940	-0-	4,722	7,662
Cherry Creek	1,089	-0-	10	1,099
Colorado Gulch	821	-0-	-0-	821
Cottonwood	3,651	-0-	2,715	6,366
Courier	575	-0-	-0-	575

TABLE A1-1 (cont.)

LAND OWNERSHIP BY ALLOTMENT
IN THE SUN VALLEY PLANNING AREA

ALLOTMENT NAME	PUBLIC LAND (Acres)	STATE LAND (Acres)	PRIVATE LAND (Acres)	TOTAL OF ALL LANDS (Acres)
Cove	6,967	1,571	2,854	11,392
Cow Creek	1,105	160	5,575	6,840
Crater	3,522	-0-	797	4,319
Croy Creek	8,478	1,747	4,985	15,210
Deer Creek (SV)	3,579	689	3,375	7,643
Deer Creek (NC)	3,130	1,669	829	5,628
Dry Creek	12,805	2,839	1,398	17,042
Ear Creek	3,632	45	25	3,702
East Fork	5,288	-0-	6,108	11,396
Elk Creek	1,130	646	2,076	3,852
Elk Mountain	1,013	310	442	1,765
Elkhorn	2,821	440	2,155	5,416
Fairfield	640	-0-	896	1,536
Flat Top Sheep Co.	28,099	10,534	21,348	59,981
Fork	80	-0-	160	240
H & S	527	-0-	988	1,515
Hailey Creek	2,645	600	2,804	6,049
Hatty Creek	220	455	126	801
Homestead	102	69	438	609
Hot Springs	952	113	3,308	4,373
Hyndman	360	-0-	190	550
Indian Creek	9,084	782	2,850	12,716
Iron Mine	7,220	1,073	5,976	14,269
Kent Canyon	2,639	-0-	256	2,895
Lake Creek	1,504	-0-	-0-	1,504
Lava Lake	10,298	917	4,869	16,084
Little	507	-0-	120	627
Little Beaver	4,646	-0-	1,186	5,832
Little Fish Creek	1,154	-0-	3,209	4,363
Little Rock Creek	643	-0-	1,317	1,960
Little Wood	3,201	2,135	305	5,641
Lower Rock Creek	3,978	248	-0-	4,226
Martin Canyon	4,336	255	13	4,604
McAtee	12	-0-	22	34
McFarland	605	-0-	1,045	1,650
McHan Creek	240	-0-	240	480
Mill Canyon	529	85	1,125	1,739
Mountain View	320	-0-	320	640
Muldoon	5,412	2,979	5,168	13,559
Muldoon Canyon	6,732	1,637	989	9,358
North 40	142	-0-	1,453	1,595
Phillips Creek	162	-0-	160	322
Piney	484	-0-	316	800

TABLE A1-1 (cont.)

LAND OWNERSHIP BY ALLOTMENT
IN THE SUN VALLEY PLANNING AREA

ALLOTMENT NAME	PUBLIC LAND (Acres)	STATE LAND (Acres)	PRIVATE LAND (Acres)	TOTAL OF ALL LANDS (Acres)
Poison Creek	5,335	407	652	6,394
Poverty Flat	120	-0-	-0-	120
Powell Creek	200	-0-	1,081	1,281
Queens Crown	3,548	-0-	1,787	5,335
Quigley	5,972	840	3,106	9,918
Red Elephant	1,660	560	20	2,240
Road Canyon	4,603	640	795	6,038
Roanhide	1,108	-0-	-0-	1,108
Rocky Bar	647	542	2,650	3,839
Rota Run	683	-0-	-0-	683
Rough Creek	1,901	640	1,624	4,165
Scattered Tracts	325	369	4,809	5,503
Severe	200	280	-0-	480
Shale	607	-0-	149	756
Sheep Creek	4,277	342	4,882	9,501
Sheep Point	834	-0-	756	1,590
Sheep Trail	1,120	-0-	23	1,143
Shirley	107	-0-	796	903
Silver Creek	2,834	-0-	716	3,550
Simpson	110	-0-	666	776
Slaughterhouse	3,378	65	3,588	7,031
Soldier	1,008	643	1,750	3,401
South East Fork	1,889	-0-	-0-	1,889
South 120	120	43	2,838	3,001
Spring Creek	1,567	61	557	2,185
Square Mountain	272	17	475	764
Stocking	2,068	-0-	1,786	3,854
Telfer	157	363	757	1,277
Three Mile	80	-0-	2,504	2,584
Timber Butte	5,675	1,481	1,549	8,705
Timber Gulch	2,816	-0-	734	3,550
Trail Creek	2,332	1,400	2,534	6,266
Upper Fish Creek	1,678	207	1,307	3,192
Upper Rock Creek	3,814	848	476	5,138
Upper Slaughterhouse	957	-0-	1,237	2,194
Water Gulch	731	240	-0-	971
West Bellevue	5,510	-0-	643	6,153
West Fork Fish Creek	1,259	703	5,364	7,326
Willow Creek	517	855	2,143	3,515
Wolftone	332	19	-0-	351
Woodbury	780	-0-	831	1,611
TOTALS	240,033	45,255	165,507	450,795

TABLE A1-2

GRAZING MANAGEMENT FOR PROPOSED ACTION AND ALTERNATIVES 1/

Allotment	Proposed Action				Alternative 1 - No Change			
	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/
Baird	Cattle Sheep	40 95	5/1 - 11/15	DR-3	Cattle Sheep	34 23	5/1 - 11/30	S
Baptie	Cattle Sheep	0 128	5/1 - 8/31	S	Cattle Sheep	8 32	5/1 - 11/30	S
Barton	Cattle	56	5/1 - 9/30	S	Cattle	100	5/1 - 11/30	S
Base Line	Cattle	138	7/20 - 9/15	DR-2	Cattle	131	7/20 - 9/15	D
Bennett	Cattle	62	5/1 - 9/30	S	Cattle	25	5/1 - 11/30	S
Big Beaver	Cattle Sheep	0 130	6/1 - 6/30 10/16 - 11/30	DR-2	Cattle Sheep	130 82	6/1 - 11/30	S
Brock Creek	Cattle	19	5/15 - 9/30	S	Cattle	12	5/1 - 11/10	S
Bullion Gulch	Sheep	256	5/15 - 11/10	S	Sheep	104	5/1 - 11/10	S
Camp Creek	Cattle Sheep	332 120	5/15 - 10/31	D	Cattle Sheep	364 92	5/1 - 11/10	S
Cherry Creek	Sheep	60	6/5 - 6/15	S	Sheep	51	6/5 - 6/15	S
Colorado Gulch	Sheep	27	5/15 - 8/31	S	Sheep	13	5/1 - 11/10	S
Cottonwood	Sheep	288	5/1 - 11/30	S	Sheep	220	5/1 - 11/30	S
Courier	Cattle	58	6/1 - 9/30	RR-4	Cattle	56	5/1 - 11/10	S
Cove	Cattle	528	5/15 - 9/30	RR-3	Cattle	659	5/1 - 11/10	S
Cow Creek	Cattle Sheep	134 0	6/16 - 10/31	DR-4	Cattle Sheep	0 134	6/1 - 6/10 10/16 - 10/25	S
Crater	Sheep	396	5/1 - 11/30	S	Sheep	361	5/1 - 11/30	S
Croy Creek	Cattle Sheep Sheep Trail	960 371 25	5/15 - 11/10	RR-4	Cattle Sheep Sheep Trail	960 311 25	5/1 - 11/10	RR-4
Deer Creek (SV)	Cattle	299	5/15 - 10/31	DR-3	Cattle	296	5/1 - 11/10	S
Deer Creek (NC)	Cattle	305	6/16 - 8/31	DR-2	Cattle	352	6/16 - 8/31	DR-2
Dry Creek	Cattle	1449	5/1 - 9/15	RR-4	Cattle	2224	5/1 - 11/30	RR-4
Ear Creek	Cattle	388	6/1 - 10/15	RR-2	Cattle	345	6/1 - 10/15	S
East Fork	Cattle Sheep	520 66	5/1 - 11/30	D-3	Cattle Sheep	284 285	5/1 - 11/30	S
Elk Creek	Cattle	88	6/1 - 10/15	DR-3	Cattle	180	6/1 - 10/15	S
Elk Mountain	Cattle	127	5/15 - 7/15 9/16 - 10/15	D-3	Cattle	255	5/1 - 11/30	S

Allotment	Alternative 3 - Lower Stocking				Alternative 4 - Greater Production			
	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/
Baird	Cattle Sheep	40 95	5/1 - 11/15	DR-3	Cattle Sheep	40 127	5/1 - 11/15	S
Baptie	Cattle Sheep	0 53	5/1 - 8/31	S	Cattle Sheep	0 176	5/1 - 8/31	S
Barton	Cattle	18	5/1 - 9/30	S	Cattle	104	5/1 - 9/30	S
Base Line	Cattle	39	7/20 - 9/15	DR-2	Cattle	199	7/20 - 9/15	DR-2
Bennett	Cattle	4	5/1 - 9/30	S	Cattle	62	5/1 - 9/30	S
Big Beaver	Cattle Sheep	0 0			Cattle Sheep	0 324	6/1 - 6/30 10/16 - 11/30	DR-2
Brock Creek	Cattle	16	5/15 - 9/30	S	Cattle	50	5/15 - 9/30	S
Bullion Gulch	Sheep	256	5/15 - 11/10	S	Sheep	280	5/15 - 11/10	S
Camp Creek	Cattle Sheep	80 79	5/15 - 10/31	D	Cattle Sheep	479 199	5/15 - 10/31	D
Cherry Creek	Sheep	3	6/5 - 6/15	S	Sheep	114	6/5 - 6/15	S
Colorado Gulch	Sheep	27	5/15 - 8/31	S	Sheep	155	5/15 - 8/31	S
Cottonwood	Sheep	288	5/1 - 11/30	S	Sheep	660	5/1 - 11/30	S
Courier	Cattle	58	6/1 - 9/30	RR-4	Cattle	130	6/1 - 9/30	RR-4
Cove	Cattle	308	5/15 - 9/30	RR-3	Cattle	690	5/15 - 9/30	RR-3
Cow Creek	Cattle Sheep	90 0	6/16 - 10/31	DR-4	Cattle Sheep	262 0	6/16 - 10/31	DR-4
Crater	Sheep	290	5/1 - 11/30	S	Sheep	425	5/1 - 11/30	S
Croy Creek	Cattle Sheep Sheep Trail	491 371 25	5/15 - 11/10	RR-4	Cattle Sheep Sheep Trail	960 768 25	5/15 - 11/10	RR-4
Deer Creek (SV)	Cattle	299	5/15 - 10/31	DR-3	Cattle	567	5/15 - 10/31	DR-3
Deer Creek (NC)	Cattle	0			Cattle	425	6/16 - 8/31	DR-2
Dry Creek	Cattle	330	5/1 - 9/15	RR-4	Cattle	2044	5/1 - 9/15	DR-4
Ear Creek	Cattle	56	6/1 - 10/15	RR-2	Cattle	656	6/1 - 10/15	RR-2
East Fork	Cattle Sheep	370 66	5/1 - 11/30	D-3	Cattle Sheep	580 194	5/1 - 11/30	D-3
Elk Creek	Cattle	4	6/1 - 10/15	DR-3	Cattle	128	6/1 - 10/15	DR-3
Elk Mountain	Cattle	37	5/15 - 7/15 9/16 - 10/15	D-3	Cattle	184	5/15 - 7/15 9/16 - 10/15	D-3

TABLE A1-2 (cont.)

GRAZING MANAGEMENT FOR PROPOSED ACTION AND ALTERNATIVES 1/

Allotment	Proposed Action				Alternative 1 - No Change			
	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/
Elkhorn	Cattle Sheep	16 332	5/15 - 11/10	S	Cattle Sheep	12 170	5/1 - 11/10	S
Fairfield	Cattle	74	6/1 - 9/30	RR-4	Cattle	59	4/16 - 6/5	S
Flat Top Sheep Co.	Cattle Sheep	3255 1000	5/1 - 11/30	DR-3	Cattle Sheep	1970 379	5/1 - 11/30	S
Fork	Cattle	7	6/1 - 7/30	DR-2	Cattle	0		
H & S	Cattle	30	7/1 - 9/30	S	Cattle	29	5/1 - 11/30	S
Hailey Creek	Sheep	368	5/1 - 11/30	S	Sheep	99	5/1 - 11/30	S
Hatty Creek	Sheep	31	5/15 - 6/15	D	Sheep	11	5/1 - 11/10	S
Homestead	Cattle	10	5/15 - 10/31	S	Cattle	6	5/1 - 11/10	S
Hot Springs	Cattle	67	5/16 - 10/30	DR-2	Cattle	87	4/16 - 9/30	S
Hyndman	Cattle	33	5/15 - 9/30	S	Cattle	32	5/1 - 11/10	S
Indian Creek	Cattle Sheep	412 720	5/15 - 10/15	RR-3	Cattle Sheep	423 212	5/1 - 11/10	DR-2
Iron Mine	Sheep	923	5/1 - 11/30	S	Sheep	776	5/1 - 11/30	S
Kent Canyon	Cattle Sheep	343 100	5/15 - 11/10	DR-2	Cattle Sheep	243 47	5/1 - 11/10	S
Lake Creek	Sheep	174	5/20 - 10/31	S	Sheep	5	5/1 - 11/10	S
Lava Lake	Cattle	734	5/1 - 11/30	DR-4	Cattle	741	5/1 - 11/30	DR-4
Little	Cattle	59	5/1 - 6/30	S	Cattle	74	5/1 - 11/30	S
Little Beaver	Cattle Sheep	109 590	5/20 - 11/15	S	Cattle Sheep	112 294	6/1 - 10/2	S
Little Fish Creek	Cattle	162	6/1 - 10/31	DR-3	Cattle	195	5/1 - 11/30	S
Little Rock Creek	Cattle	48	5/20 - 9/30	DR-2	Cattle	41	5/1 - 11/10	S
Little Wood	Sheep	401	5/1 - 6/15 9/1 - 11/30	S	Sheep	382	5/1 - 11/30	S
Lower Rock Creek	Cattle Sheep Trail	495 45	5/20 - 9/15	DR-2	Cattle Sheep Trail	511 36	5/1 - 11/10	DR-2
Martin Canyon	Sheep	404	5/15 - 11/10	S	Sheep	131	5/1 - 11/10	S
McAtee	Cattle	0			Cattle	7	5/1 - 11/10	S
McFarland	Cattle	84	7/1 - 9/15	S	Cattle	90	5/1 - 11/30	S
McHan Creek	Cattle	39	6/16 - 9/30	S	Cattle	64	6/16 - 9/30	S

Allotment	Alternative 3 - Lower Stocking				Alternative 4 - Greater Production			
	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/
Elkhorn	Cattle Sheep	16 332	5/15 - 11/10	S	Cattle Sheep	27 540	5/15 - 11/10	S
Fairfield	Cattle	9	6/1 - 9/30	RR-4	Cattle	114	6/1 - 9/30	RR-4
Flat Top Sheep Co.	Cattle Sheep	1308 600	5/1 - 11/30	DR-3	Cattle Sheep	4061 1100	5/1 - 11/30	DR-3
Fork	Cattle	5	6/1 - 7/30	DR-2	Cattle	25	6/1 - 7/30	DR-2
H & S	Cattle	25	7/1 - 9/30	S	Cattle	71	7/1 - 9/30	S
Hailey Creek	Sheep	252	5/1 - 11/30	S	Sheep	649	5/1 - 11/30	S
Hatty Creek	Sheep	10	5/15 - 6/15	D	Sheep	43	5/15 - 6/15	D
Homestead	Cattle	6	5/15 - 10/31	D	Cattle	23	5/15 - 10/31	S
Hot Springs	Cattle	67	5/16 - 10/30	DR-2	Cattle	132	5/16 - 10/30	DR-2
Hyndman	Cattle	33	5/15 - 9/30	S	Cattle	64	5/15 - 9/30	S
Indian Creek	Cattle Sheep	292 720	5/15 - 10/15	RR-3	Cattle Sheep	420 1085	5/15 - 10/15	RR-3
Iron Mine	Sheep	923	5/1 - 11/30	S	Sheep	1300	5/1 - 11/30	S
Kent Canyon	Cattle Sheep	271 100	5/15 - 11/10	DR-2	Cattle Sheep	382 46	5/15 - 11/10	DR-2
Lake Creek	Sheep	174	5/20 - 10/31	S	Sheep	440	5/20 - 10/31	S
Lava Lake	Cattle	734	5/1 - 11/30	DR-4	Cattle	1320	5/1 - 11/30	DR-4
Little	Cattle	5	5/1 - 6/30	S	Cattle	69	5/1 - 6/30	S
Little Beaver	Cattle Sheep	3 0	5/20 - 11/15	S	Cattle Sheep	128 654	5/20 - 11/15	S
Little Fish Creek	Cattle	74	6/1 - 10/31	DR-3	Cattle	199	6/1 - 10/31	DR-3
Little Rock Creek	Cattle	48	5/20 - 9/30	DR-2	Cattle	121	5/20 - 9/30	DR-2
Little Wood	Sheep	189	5/1 - 6/15 9/1 - 11/30	S	Sheep	417	5/1 - 6/15 9/1 - 11/30	S
Lower Rock Creek	Cattle Sheep Trail	307 45	5/20 - 9/15	DR-2	Cattle Sheep Trail	596 50	5/20 - 9/15	DR-2
Martin Canyon	Sheep	404	5/15 - 11/10	S	Sheep	748	5/15 - 11/10	S
McAtee	Cattle	0			Cattle	0		
McFarland	Cattle	9	7/1 - 9/15	S	Cattle	111	7/1 - 9/15	S
McHan Creek	Cattle	5	6/16 - 9/30	S	Cattle	55	6/16 - 9/30	S

TABLE A1-2 (cont.)

GRAZING MANAGEMENT FOR PROPOSED ACTION AND ALTERNATIVES 1/

Allotment	Proposed Action				Alternative 1 - No Change			
	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/
Mill Canyon	Cattle	28	5/16 - 8/31	S	Cattle	37	5/1 - 8/15	S
Mountain View	Cattle	17	6/1 - 8/31	S	Cattle	30	6/1 - 8/31	S
Muldoon	Cattle Sheep	400 708	5/1 - 11/15	S	Cattle Sheep	317 600	5/1 - 11/30	S
Muldoon Canyon	Cattle Sheep	276 480	5/15 - 11/15	D	Cattle Sheep	260 89	5/1 - 11/10	S
North 40	Sheep	36	5/1 - 11/30	S	Sheep	24	5/1 - 11/30	S
Phillips Creek	Cattle	20	5/16 - 8/15	S	Cattle	26	5/16 - 6/1 7/1 - 8/15	D
Piney	Cattle	43	6/1 - 7/18	S	Cattle	57	6/1 - 7/18	S
Poison Creek	Cattle Sheep	497 92	5/15 - 9/30	RR-3	Cattle Sheep	600 50	5/1 - 11/10	RR-3
Poverty Flat	Cattle	0			Cattle	0		
Powell Creek	Cattle	17	5/16 - 8/31	S	Cattle	25	4/16 - 7/31	S
Queens Crown	Cattle	396	5/1 - 7/15	DR-2	Cattle	339	5/1 - 11/30	S
Quigley	Sheep	739	5/15 - 11/10	S	Sheep	453	5/1 - 11/10	S
Red Elephant	Cattle Sheep	36 113	5/15 - 11/10	S	Cattle Sheep	7 79	5/1 - 11/10	S
Road Canyon	Cattle	379	5/1 - 7/31	S	Cattle	379	5/1 - 11/30	S
Roanhide	Sheep	120	6/1 - 10/15	RR-2	Sheep	24	5/25 - 6/10 10/1 - 10/15	S
Rocky Bar	Cattle Sheep	120 2	5/1 - 11/10	S	Cattle Sheep	120 3	5/1 - 11/30	S
Rota Run	Sheep	23	5/15 - 10/31	S	Sheep	27	5/1 - 11/10	S
Rough Creek	Cattle	391	6/16 - 9/30	RR-4	Cattle	442	6/16 - 9/30	S
Scattered Tracts	Cattle	43	5/15 - 9/30	D	Cattle	47	5/1 - 11/10	S
Severe	Cattle	29	5/16 - 7/31	D	Cattle	0		
Shale	Cattle	62	5/1 - 8/31	S	Cattle	105	5/1 - 11/30	S
Sheep Creek	Sheep	705	5/1 - 11/30	S	Sheep	321	5/1 - 11/30	S
Sheep Point	Cattle	71	5/16 - 6/15	S	Cattle	91	5/1 - 5/31	S
Sheep Trail	Sheep Trail	158	Trail Only	S	Sheep Trail	20	Trail Only	S
Shirley	Cattle	0			Cattle	30	5/1 - 11/10	S

Allotment	Alternative 3 - Lower Stocking				Alternative 4 - Greater Production			
	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/
Mill Canyon	Cattle	2	5/16 - 8/31	S	Cattle	39	5/16 - 8/31	S
Mountain View	Cattle	2	6/1 - 8/31	S	Cattle	23	6/1 - 8/31	S
Muldoon	Cattle Sheep	200 438	5/1 - 11/15	S	Cattle Sheep	400 822	5/1 - 11/15	S
Muldoon Canyon	Cattle Sheep	155 480	5/15 - 11/15	D	Cattle Sheep	370 560	5/15 - 11/15	D
North 40	Sheep	12	5/1 - 11/30	S	Sheep	36	5/1 - 11/30	S
Phillips Creek	Cattle	4	5/16 - 8/15	S	Cattle	24	5/16 - 8/15	S
Piney	Cattle	2	6/1 - 7/18	S	Cattle	62	6/1 - 7/18	S
Poison Creek	Cattle Sheep	80 92	5/15 - 9/30	RR-3	Cattle Sheep	903 154	5/15 - 9/30	RR-3
Poverty Flat	Cattle	0			Cattle	0		
Powell Creek	Cattle	6	5/16 - 8/31	S	Cattle	25	5/16 - 8/31	S
Queens Crown	Cattle	30	5/1 - 7/15	DR-2	Cattle	440	5/1 - 7/15	DR-2
Quigley	Sheep	739	5/15 - 11/10	S	Sheep	1253	5/15 - 11/10	S
Red Elephant	Cattle Sheep	36 113	5/15 - 11/10	S	Cattle Sheep	36 285	5/15 - 11/10	S
Road Canyon	Cattle	153	5/1 - 7/31	S	Cattle	454	5/1 - 7/31	S
Roanhide	Sheep	44	6/1 - 10/15	RR-2	Sheep	192	6/1 - 10/15	RR-2
Rocky Bar	Cattle Sheep	89 2	5/1 - 11/10	S	Cattle Sheep	120 2	5/1 - 11/10	S
Rota Run	Sheep	19	5/15 - 10/23	S	Sheep	73	5/15 - 10/31	S
Rough Creek	Cattle	33	6/16 - 9/30	RR-4	Cattle	424	6/16 - 9/30	RR-4
Scattered Tracts	Cattle	8	5/15 - 9/30	S	Cattle	73	5/15 - 9/30	D
Severe	Cattle	0			Cattle	49	5/16 - 7/31	D
Shale	Cattle	62	5/1 - 8/31	S	Cattle	84	5/1 - 8/31	S
Sheep Creek	Sheep	483	5/1 - 11/30	S	Sheep	705	5/1 - 11/30	S
Sheep Point	Cattle	6	5/16 - 6/15	S	Cattle	103	5/16 - 6/15	S
Sheep Trail	Sheep Trail	134	Trail Only	S	Sheep Trail	190	Trail Only	S
Shirley	Cattle	0			Cattle	2	5/1 - 11/15	S

TABLE A1-2 (cont.)

GRAZING MANAGEMENT FOR PROPOSED ACTION AND ALTERNATIVES 1/

Allotment	Proposed Action				Alternative 1 - No Change			
	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/
Silver Creek	Cattle	250	5/1 - 7/31	DR-2	Cattle	196	5/1 - 11/30	DR-2
Simpson	Sheep	22	5/1 - 11/10	S	Sheep	0		
Slaughterhouse	Sheep	622	5/15 - 11/10	S	Sheep	290	5/1 - 11/10	S
Soldier	Sheep	80	9/1 - 9/20	D	Sheep	24	9/1 - 9/20	S
South East Fork	Sheep	146	5/15 - 11/10	RR-3	Sheep	100	5/1 - 11/10	S
South 120	Sheep	28	5/1 - 11/30	S	Sheep	40	5/1 - 11/30	S
Spring Creek	Cattle Sheep	75 13	5/1 - 7/31	S	Cattle Sheep	75 14	5/1 - 11/30	S
Square Mountain	Cattle	29	6/1 - 9/30	D	Cattle	29	5/1 - 11/10	S
Stocking	Cattle Sheep	90 0	5/1 - 8/31	DR-2	Cattle Sheep	54 72	5/1 - 11/30	S
Telfer	Cattle Sheep	0 39	5/1 - 8/31	S	Cattle Sheep	8 8	5/1 - 11/30	S
Three Mile	Cattle	13	6/1 - 10/20	S	Cattle	19	6/1 - 10/20	S
Timber Butte	Cattle	540	6/16 - 10/15	DR-3	Cattle	501	5/1 - 11/30	S
Timber Gulch	Sheep	136	5/15 - 11/10	S	Sheep	48	5/1 - 11/10	S
Trail Creek	Cattle Sheep	321 285	5/1 - 9/30	S	Cattle Sheep	303 23	5/1 - 11/30	S
Upper Fish Creek	Sheep	189	5/1 - 8/31	S	Sheep	53	5/1 - 11/30	S
Upper Rock Creek	Sheep	788	5/15 - 11/10	S	Sheep	188	5/1 - 11/10	S
Upper Slaughterhouse	Sheep	207	5/15 - 11/10	S	Sheep	36	5/1 - 11/10	S
Water Gulch	Sheep	128	5/15 - 11/10	S	Sheep	112	5/1 - 11/10	S
West Bellevue	Cattle Sheep	444 535	5/15 - 11/10	DR-3	Cattle Sheep	327 283	5/1 - 11/10	S
West Fork Fish Creek	Cattle Sheep	77 156	5/1 - 8/31	S	Cattle Sheep	26 56	5/1 - 11/30	S
Willow Creek	Cattle	40	6/20 - 9/19	S	Cattle	71	6/20 - 9/10	S
Wolftone	Sheep	9	5/15 - 8/31	S	Sheep	4	5/1 - 11/10	S
Woodbury	Cattle	84	5/15 - 7/31	S	Cattle	119	5/1 - 11/30	S

1/ Alternative 2 is not shown because no grazing management would be involved.
2/ "D" stands for "deferred use," "DR" for "deferred rotation," "RR" for "rest rotation," and "S" for "seasonal use," as defined in the Glossary. The numeral following some of the abbreviations represents the number of treatments in that grazing system.

Allotment	Alternative 3 - Lower Stocking				Alternative 4 - Greater Production			
	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/	Kind of Livestock	Stocking Rate (AUMs)	Season of Use	Grazing System 2/
Silver Creek	Cattle	99	5/1 - 7/31	DR-2	Cattle	325	5/1 - 7/31	DR-2
Simpson	Sheep	22	5/1 - 11/10	S	Sheep	18	5/1 - 11/10	S
Slaughterhouse	Sheep	622	5/15 - 11/10	S	Sheep	676	5/15 - 11/10	S
Soldier	Sheep	15	9/1 - 9/20	D	Sheep	145	9/1 - 9/20	D
South East Fork	Sheep	146	5/15 - 11/10	RR-3	Sheep	309	5/15 - 11/10	RR-3
South 120	Sheep	2	5/1 - 11/30	S	Sheep	30	5/1 - 11/30	S
Spring Creek	Cattle Sheep	75 13	5/1 - 7/31	S	Cattle Sheep	97 64	5/1 - 7/31	S
Square Mountain	Cattle	29	6/1 - 9/30	D	Cattle	55	6/1 - 9/30	D
Stocking	Cattle Sheep	90 0	5/1 - 8/31	DR-2	Cattle Sheep	310 0	5/1 - 8/31	DR-2
Telfer	Cattle Sheep	0 37	5/1 - 8/31	S	Cattle Sheep	0 40	5/1 - 8/31	S
Three Mile	Cattle	0			Cattle	17	6/1 - 10/20	S
Timber Butte	Cattle	507	6/16 - 10/15	DR-3	Cattle	728	6/16 - 10/15	DR-3
Timber Gulch	Sheep	136	5/15 - 11/10	S	Sheep	474	5/15 - 11/10	S
Trail Creek	Cattle Sheep	100 157	5/1 - 9/30	S	Cattle Sheep	321 285	5/1 - 9/30	S
Upper Fish Creek	Sheep	189	5/1 - 8/31	S	Sheep	500	5/1 - 11/30	S
Upper Rock Creek	Sheep	658	5/15 - 11/10	S	Sheep	892	5/15 - 11/10	S
Upper Slaughterhouse	Sheep	107	5/15 - 11/10	S	Sheep	210	5/15 - 11/10	S
Water Gulch	Sheep	128	5/15 - 11/10	S	Sheep	130	5/15 - 11/10	S
West Bellevue	Cattle Sheep	366 461	5/15 - 11/10	DR-3	Cattle Sheep	444 930	5/15 - 11/10	DR-3
West Fork Fish Creek	Cattle Sheep	20 49	5/1 - 8/31	S	Cattle Sheep	85 195	5/1 - 8/31	S
Willow Creek	Cattle	0			Cattle	52	6/20 - 9/19	S
Wolftone	Sheep	9	5/15 - 8/31	S	Sheep	79	5/15 - 8/31	S
Woodbury	Cattle	8	5/15 - 7/31	S	Cattle	88	5/15 - 7/31	S

TABLE A1-3

RANGE IMPROVEMENTS IMPLEMENTATION SCHEDULE AND COSTS BY ALLOTMENT 1/

Allotment Name 2/	Proposed Action			Alternative 3 Lower Stocking			Alternative 4 Greater Production		
	Kind/Units	Year	Cost	Kind/Units	Year	Cost	Kind/Units	Year	Cost
Barton	Reservoir/1 each	1	3000	Reservoir/1 each	1	3000	Reservoir/1 each	1	3000
	Spring/1 each	1	1200	Spring/1 each	1	1200	Spring/1 each	1	1200
	Brush Control/90 acres	1	400				Brush Control/843 acres	1	3790
	Brush Control & Seeding/ 10 acres	1	180				Brush Control & Seeding/ 10 acres	1	180
Baseline	Spring/2 each	3	2400	Spring/2 each	3	2400	Spring/2 each	3	2400
							Fence/1.5 miles	1	3750
							Brush Control/862 acres	3	3880
Big Beaver	Reservoir/1 each	1	1500	None			Reservoir/1 each	1	1500
	Spring/2 each	1	2400				Spring/2 each	1	2400
							Brush Control/1567 acres	1	7050
							Brush Control & Seeding/ 200 acres	1	3500
Brock Creek	Spring/1 each	3	1200	Spring/1 each	3	1200	Spring/1 each	3	1200
							Seeding/112 acres	3	500
Bullion Gulch	Spring/1 each	2	1200	Spring/1 each	2	1200	Spring/1 each	2	1200
	Brush Control/100 acres	3	450				Brush Control/1322 acres	3	5950
Camp Creek	None			None			Seeding/440 acres	3	1760
							Brush Control/2305 acres	2	10370
							Brush Control & Seeding/ 180 acres	2	3150
Cherry Creek	Fence/0.5 miles	1	1250	Fence/0.5 miles	1	1250	Fence/0.5 miles	1	1250
							Brush Control/1089 acres	2	4900
Colorado Gulch	Spring/1 each	3	1200	Spring/1 each	3	1200	Spring/1 each	3	1200
							Brush Control/796 acres	3	3580
Cottonwood	Spring/2 each	3	2400	Spring/2 each	3	2400	Spring/2 each	3	2400
							Brush Control/2916 acres	2	13120
Courier	Pipeline/1 mile	3	8000	Pipeline/1 mile	3	8000	Pipeline/1 mile	3	8000
	Brush Control/300 acres	3	1350				Brush Control/575 acres	3	2590
Cove	Spring/2 each	1	2400	Spring/2 each	1	2400	Spring/2 each	1	2400
	Brush Control/350 acres	1	1580				Brush Control/3356 acres	1	15100
Cow Creek	Reservoir/1 each	2	3000	Reservoir/1 each	2	3000	Reservoir/1 each	2	3000
							Fence/0.8 miles	2	2000
							Brush Control/1086 acres	2	4890
Crater	Spring/1 each	3	1200	Spring/1 each	3	1200	Spring/1 each	3	1200
							Brush Control/3343 acres	2	15050
Croy Creek	Reservoir/2 each	3	3000	Reservoir/2 each	3	3000	Reservoir/2 each	3	3000
	Spring/5 each	3	6000	Spring/5 each	3	6000	Spring/5 each	3	6000
	Pipeline/0.2 miles	3	1600	Pipeline/0.2 miles	3	1600	Pipeline/0.2 miles	3	1600
	Brush Control/1300 acres	2	5850				Brush Control/2900 acres	1	13050
	Brush Control/1000 acres	3	4500				Brush Control/2700 acres	2	12150
	Seeding/75 acres	3	340				Brush Control/2399 acres	3	10800
							Seeding/75 acres	3	340
Deer Creek (SV)	Spring/1 each	2	1200	Spring/1 each	2	1200	Spring/1 each	2	1200
	Fence/1.5 miles	2	3750	Fence/1.5 miles	2	3750	Fence/1.5 miles	2	3750
	Brush Control/700 acres	2	3150				Brush Control/900 acres	2	4050
							Brush Control/2536 acres	3	11410
Deer Creek (NC)	Fence/3.0 miles	1	7500	None			Fence/2.0 miles	1	7500
	Brush Control & Seeding/ 100 acres	1	1750				Brush Control/2968 acres	1	13360
Dry Creek	Reservoir/2 each	1	3000	Reservoir/2 each	1	3000	Reservoir/3 each	1	4500
	Spring/2 each	1	2400	Spring/2 each	1	2400	Spring/2 each	1	2400
	Brush Control/3500 acres	1	15750				Brush Control/3500 acres	1	15750
	Brush Control/4000 acres	2	18000				Brush Control/4000 acres	2	18000
	Brush Control/2190 acres	3	9850				Brush Control/4025 acres	3	18110
	Brush Control & Seeding/ 150 acres	1	2780				Brush Control & Seeding/ 150 acres	1	2780
Ear Creek	Fence/1.0 miles	1	2500	Fence/1.0 miles	1	2500	Fence/1.0 miles	1	2500
							Brush Control/3353 acres	2	15090

TABLE A1-3 (cont.)

RANGE IMPROVEMENTS IMPLEMENTATION SCHEDULE AND COSTS BY ALLOTMENT 1/

Allotment Name 2/	Proposed Action			Alternative 3 Lower Stocking			Alternative 4 Greater Production		
	Kind/Units	Year	Cost	Kind/Units	Year	Cost	Kind/Units	Year	Cost
East Fork	Reservoir/1 each	1	1500	Reservoir/1 each	1	1500	Reservoir/1 each	1	1500
	Spring/2 each	1	2400	Spring/2 each	1	2400	Spring/2 each	1	2400
	Fence/0.8 miles	1	2000	Fence/0.8 miles	1	2000	Fence/0.8 miles	1	2000
	Brush Control/300 acres	1	1350				Brush Control/2348 acres	1	10570
	Brush Control & Seeding/ 800 acres	1	14000				Brush Control/900 acres	2	4050
							Brush Control & Seeding/ 800 acres	2	14000
Elk Creek	Spring/2 each	1	2400	None			Spring/3 each	1	3600
	Fence/1.5 miles	1	3750				Fence/1.5 miles	1	3750
							Brush Control/669 acres	1	3010
Elk Mountain	Fence/1.5 miles	1	3750	Fence/1.5 miles	1	3750	Fence/1.0 mile	1	2500
	Brush Control & Seeding/ 600 acres	1	10500				Brush Control/415 acres	1	1870
							Brush Control & Seeding/ 598 acres	1	10470
Elkhorn	Spring/1 each	3	1200	Spring/1 each	3	1200	Spring/1 each	3	1200
							Brush Control/2621 acres	3	11800
Fairfield	Reservoir/2 each	2	4500	None			Reservoir/2 each	2	3000
	Spring/3 each	2	3600				Spring/3 each	2	3600
	Brush Control/160 acres	2	720				Brush Control/602 acres	2	2710
Flat Top Sheep Co.	Reservoir/2 each	3	4500	Reservoir/2 each	3	4500	Reservoir/2 each	3	4500
	Spring/7 each	3	8400	Spring/7 each	3	8400	Spring/7 each	3	8400
							Brush Control/3120 acres	1	14040
							Brush Control/1480 acres	2	6660
							Brush Control/9000 acres	3	40500
H & S	Spring/1 each	2	1200	Spring/1 each	2	1200	Spring/1 each	2	1200
							Brush Control/420 acres	3	1890
Hailey Creek	None			None			Brush Control/1920 acres	3	8640
Hatty Creek	None			None			Brush Control/220 acres	3	990
Homestead	Brush Control/100 acres	3	450	None			Brush Control/102 acres	3	460
Hot Springs	Reservoir/2 each	1	3000	Reservoir/2 each	1	3000	Reservoir/2 each	1	3000
	Fence/0.5 miles	1	1250	Fence/0.5 mile	1	1250	Fence/0.5 mile	1	1250
	Brush Control/200 acres	1	900				Brush Control/630 acres	1	2840
Hyndman	Brush Control/350 acres	3	1580	None			Brush Control/360 acres	3	1620
Indian Creek	Reservoir/2 each	1	3000	Reservoir/2 each	1	3000	Reservoir/2 each	1	3000
	Spring/2 each	1	2400	Spring/2 each	1	2400	Spring/2 each	1	2400
	Fence/2.3 miles	1	5750	Fence/2.3 miles	1	5750	Fence/2.3 miles	1	5750
	Brush Control/350 acres	2	1580				Brush Control/3900 acres	1	17550
	Brush Control & Seeding/ 450 acres	2	7880				Brush Control/3880 acres	3	17460
							Brush Control & Seeding/ 440 acres	3	7700
Iron Mine	Spring/3 each	2	3600	Spring/3 each	2	3600	Spring/3 each	2	3600
							Brush Control/1300 acres	2	5850
							Brush Control/1650 acres	3	7430
Kent Canyon	Spring/1 each	2	1200	Spring/1 each	2	1200	Spring/1 each	2	1200
	Brush Control/1625 acres	3	7320				Brush Control/1640 acres	3	7380
Lake Creek	Spring/1 each	3	1200	Spring/1 each	3	1200	Spring/1 each	3	1200
							Brush Control/1500 acres	3	6670
Lava Lake	Spring/4 each	2	4800	Spring/4 each	2	4800	Spring/4 each	2	4800
	Pipeline/1.3 miles	2	10400	Pipeline/1.3 miles	2	10400	Pipeline/1.3 miles	2	10400
	Brush Control & Seeding/ 1265 acres	2	22140				Brush Control/2200 acres	1	9900
							Brush Control & Seeding/ 1265 acres	2	22140
Little	Brush Control/50 acres	1	230	None			Brush Control/496 acres	1	2230
Little Beaver	Spring/2 each	2	2400	None			Spring/2 each	2	2400
							Brush Control/4394 acres	2	19770
Little Fish Creek	Spring/1 each	1	1200	Spring/1 each	1	1200	Spring/1 each	1	1200
	Brush Control/100 acres	1	450				Brush Control/775 acres	1	3490

TABLE A1-3 (cont.)

RANGE IMPROVEMENTS IMPLEMENTATION SCHEDULE AND COSTS BY ALLOTMENT 1/

Allotment Name 2/	Proposed Action			Alternative 3 Lower Stocking			Alternative 4 Greater Production		
	Kind/Units	Year	Cost	Kind/Units	Year	Cost	Kind/Units	Year	Cost
Little Rock Creek	Fence/0.5 miles	1	1250	Fence/0.5 miles	1	1250	Fence/0.5 miles	1	1250
	Brush Control/320 acres	2	1440				Brush Control/573 acres	2	2580
							Brush Control & Seeding/ 70 acres	2	1230
Lower Rock Creek	Reservoir/1 each	2	3000	Reservoir/1 each	2	3000	Reservoir/1 each	2	3000
	Spring/4 each	2	4800	Spring/4 each	2	4800	Spring/4 each	2	4800
	Fence/0.2 miles	1	500	Fence/0.2 miles	1	500	Fence/0.2 miles	1	500
	Brush Control & Seeding/ 500 acres	1	8750				Brush Control/800 acres	1	3600
							Brush Control/380 acres	3	1710
	Brush Control & Seeding/ 200 acres	3	3500				Brush Control & Seeding/ 500 acres	1	8750
							Brush Control & Seeding/ 300 acres	3	5250
Martin Canyon	Fence/0.2 miles	3	500	Fence/0.2 miles	3	500	Fence/0.2 miles	3	500
	Brush Control/200 acres	3	900				Brush Control/2624 acres	3	11810
McFarland	Spring/2 each	1	2400	None			Spring/2 each	1	2400
							Brush Control/440 acres	1	1980
							Brush Control & Seeding/ 20 acres	1	350
McHan Creek	Spring/2 each	1	2400	None			Spring/2 each	1	2400
							Brush Control/240 acres	1	1080
Mill Canyon	Fence/1.0 mile	1	2500	None			Fence/1.0 mile	1	2500
							Brush Control/454 acres	1	2040
Mountain View	Reservoir/1 each	1	1500	None			Reservoir/1 each	1	1500
	Spring/1 each	1	1200				Spring/1 each	1	1200
	Brush Control/120 acres	1	540				Brush Control/226 acres	1	1020
Muldoon	Spring/2 each	3	2400	Spring/2 each	3	2400	Spring/2 each	3	2400
							Brush Control/1200 acres	3	5400
Muldoon Canyon	Spring/3 each	1	3600	Spring/3 each	1	3600	Spring/3 each	1	3600
							Brush Control/5500 acres	2	24750
North 40	Brush Control/30 acres	3	140	None			Brush Control/102 acres	3	460
Phillips Creek	Fence/0.8 miles	1	2000	None			Fence/0.8 miles	1	2000
							Brush Control/128 acres	1	580
Piney	Spring/1 each	1	1200	None			Spring/1 each	1	1200
	Brush Control/80 acres	1	360				Brush Control/349 acres	1	1570
Poison Creek	Reservoir/5 each	1	6000	Reservoir/5 each	1	6000	Reservoir/5 each	1	6000
	Spring/2 each	1	2400	Spring/2 each	1	2400	Spring/2 each	1	2400
	Cattleguard/6 each	2	7200	Cattleguard/6 each	2	7200	Cattleguard/6 each	2	7200
	Brush Control/500 acres	1	2250				Brush Control/1900 acres	1	8550
							Brush Control/1646 acres	2	7410
							Brush Control/1700 acres	3	7650
Powell Creek	None			None			Brush Control/200 acres	1	900
Queens Crown	Spring/2 each	1	2400	Spring/2 each	1	2400	Spring/2 each	1	2400
							Brush Control/3028 acres	1	13630
Quigley	Spring/3 each	2	3600	Spring/3 each	2	3600	Spring/3 each	2	3600
							Brush Control/5577 acres	3	25100
Red Elephant	None			None			Brush Control/1210 acres	3	5450
Road Canyon	Reservoir/3 each	1	4500	Reservoir/3 each	1	4500	Reservoir/3 each	1	4500
	Spring/4 each	1	4800	Spring/4 each	1	4800	Spring/4 each	1	4800
	Brush Control/440 acres	1	1980				Brush Control/2000 acres	1	9000
	Brush Control & Seeding/ 60 acres	1	1050				Brush Control/2100 acres	3	9450
							Brush Control & Seeding/ 60 acres	1	1050
Roanhide	None			None			Brush Control/1069 acres	3	4810
Rota Run	None			None			Seeding/400 acres	3	1800
							Brush Control & Seeding/ 283 acres	3	4950

TABLE A1-3 (cont.)

RANGE IMPROVEMENTS IMPLEMENTATION SCHEDULE AND COSTS BY ALLOTMENT 1/

Allotment Name 2/	Proposed Action			Alternative 3 Lower Stocking			Alternative 4 Greater Production		
	Kind/Units	Year	Cost	Kind/Units	Year	Cost	Kind/Units	Year	Cost
Rough Creek	Spring/2 each	2	2400	None			Spring/2 each	2	2400
							Brush Control/1807 acres	2	8130
Scattered Tracts	None			None			Brush Control/325 acrea	1	1460
Severe	None			None			Brush Control/200 acres	3	900
Shale	Spring/1 each	1	1200	Spring/1 each	1	1200	Spring/1 each	1	1200
	Brush Control & Seeding/ 90 acres	1	1580				Brush Control/270 acres	1	1220
							Brush Control & Seeding/ 90 acres	1	1580
Sheep Creek	Fence/1.5 miles	1	3750	Fence/1.5 miles	1	3750	Fence/1.5 miles	1	3750
							Brush Control/2010 acres	2	9050
Sheep Point	Spring/1 each	1	1200	None			Spring/1 each	1	1200
	Fence/0.5 miles	1	1250				Fence/0.5 miles	1	1250
							Brush Control/759 acres	1	3420
Shirley	None			None			Brush Control/30 acres	3	140
Silver Creek	Reservoir/2 each	1	3000	Reservoir/2 each	1	3000	Reservoir/2 each	1	3000
	Spring/2 each	1	2400				Spring/2 each	1	2400
	Brush Control/130 acres	3	590				Brush Control/1255 acres	3	5650
	Brush Control & Seeding/ 150 acres	1	2630				Brush Control & Seeding/ 1470 acres	1	25730
Simpson	Cattleguard/1 each	1	2650	Cattleguard/1 each	1	2650	Cattleguard/1 each	1	2650
Slaughterhouse	Brush Control/100 acres	2	450	None			Brush Control/1035 acres	2	4660
Soldier	None			None			Brush Control/918 acres	3	4130
South East Fork	Spring/1 each	2	1200	Spring/1 each	2	1200	Spring/1 each	2	1200
	Fence/0.2 miles	2	500	Fence/0.2 miles	2	500	Fence/0.2 miles	2	500
							Brush Control/1713 acres	2	7710
Spring Creek	Fence/0.5 miles	1	1250	Fence/0.5 miles	1	1250	Fence/0.5 miles	1	1250
							Cattleguard/1 each-	1	1200
Square Mountain	None			None			Brush Control/249 acres	2	1120
Stocking	Spring/2 each	1	2400	Spring/2 each	1	2400	Spring/3 each	1	3600
							Brush Control/650 acres	2	2930
Three Mile	None			None			Brush Control/80 acres	2	360
Timber Butte	Reservoir/2 each	1	3000	Reservoir/2 each	1	3000	Reservoir/2 each	1	3000
	Spring/3 each	1	3600	Spring/3 each	1	3600	Spring/3 each	1	3600
	Fence/3.5 miles	2	8750	Fence/3.5 miles	2	8750	Fence/3.5 miles	2	8750
	Brush Control/325 acres	1	1460				Brush Control/3380 acres	1	15210
	Brush Control & Seeding/ 125 acres	1	2190				Brush Control & Seeding/ 120 acres	1	2100
Timber Gulch	None			None			Brush Control/2553 acres	3	11490
Trail Creek	Spring/1 each	2	1200	Spring/1 each	2	1200	Spring/1 each	2	1200
							Brush Control/1820 acres	2	8190
Upper Fish Creek	None			None			Brush Control/700 acres	3	3150
Upper Rock Creek	Spring/2 each	2	2400	Spring/2 each	2	2400	Spring/2 each	2	2400
	Wells/2 each (horizontal)	2	4000	Wells/2 each (horizontal)	2	4000	Wells/2 each (horizontal)	2	4000
							Brush Control/3662 acres	2	16480
Upper Slaughterhouse	Spring/1 each	2	1200	Spring/1 each	2	1200	Spring/1 each	2	1200
	Brush Control/50 acrea	2	230				Brush Control/957 acres	2	4310
Water Gulch	Brush Control/150 acrea	1	680	None			Brush Control/684 acres	1	3080
West Bellevue	Spring/4 each	2	4800	Spring/4 each	2	4800	Spring/4 each	2	4800
	Cattleguard/2 each	1	2400	Cattleguard/2 each	1	2400	Cattleguard/2 each	1	2400
							Brush Control/5136 acres	1	23110
West Fork Fish Creek	Spring/1 each	3	1200	Spring/1 each	3	1200	Spring/1 each	3	1200
	Fence/1.3 miles	3	3250	Fence/1.3 miles	3	3250	Fence/1.3 miles	3	3250
	Brush Control/100 acres	3	450				Brush Control/320 acres	3	1440

TABLE A1-3 (cont.)

RANGE IMPROVEMENTS IMPLEMENTATION SCHEDULE AND COSTS BY ALLOTMENT 1/

Allotment Name 2/	Proposed Action			Alternative 3 Lower Stocking			Alternative 4 Greater Production		
	Kind/Units	Year	Cost	Kind/Units	Year	Cost	Kind/Units	Year	Cost
Willow Creek	Reservoir/1 each	1	1500	None			Reservoir/1 each	1	1500
							Brush Control/349 acres	1	1570
Wolftone	None			None			Brush Control/332 acres	3	1500
Woodbury	Spring/1 each	1	1200	None			Spring/1 each	1	1200
	Brush Control/80 acres	1	360				Brush Control/250 acres	1	1130
	Brush Control & Seeding/ 20 acres	1	350				Brush Control & Seeding/ 20 acres	1	350
Totals 3/			$426,960			$211,850			$1,110,300

1/ Only the alternatives that would include new range improvements are presented in this table.
2/ The following allotments have been omitted from the table because no new range improvements are proposed: Baird, Baptie, Bennett, Fork, Little Wood, McAtee, Poverty Flat, Rocky Bar, Sheep Trail, South 120, and Telfer.
3/ Costs of range improvements by year and type are summarized in Table A1-4.
4/ Cost of brush control is based on the cost of prescribed burning. Additional costs would be incurred if other methods of brush control were used.

TABLE A1-4

RANGE IMPROVEMENTS IMPLEMENTATION SCHEDULE AND COSTS SUMMARY 1/

Year & Type of Improvement	Proposed Action		Alternative 3		Alternative 4	
Year 1						
Reservoir	23 each	$ 33,000	20 each	$ 30,000	24 each	$ 34,500
Spring	41 each	49,200	27 each	32,400	43 each	51,600
Well	None		None		None	
Pipeline	None		None		None	
Fence	16.1 miles	40,250	9.3 miles	23,250	16.1 miles	40,250
Cattleguard	3 each	5,050	3 each	5,050	4 each	6,250
Brush Control	6,285 acres	28,290	None		50,605 acres	227,750
Brush Control & Seeding	2,605 acres	45,760	None		3,238 acres	56,840
Seedling	None		None		None	
Subtotal		$201,550		$ 90,700		$417,190
Year 2						
Reservoir	4 each	$ 7,500	2 each	$ 6,000	4 each	$ 7,500
Spring	34 each	40,800	27 each	32,400	34 each	40,800
Well	2 each	4,000	2 each	4,000	2 each	4,000
Pipeline	1.3 miles	10,400	1.3 miles	10,400	1.3 miles	10,400
Fence	5.2 miles	13,000	5.2 miles	13,000	6.0 miles	15,000
Cattleguard	6 each	7,200	6 each	7,200	6 each	7,200
Brush Control	6,980 acres	31,420	None		52,070 acres	234,340
Brush Control & Seeding	1,715 acres	30,020	None		2,315 acres	40,520
Seedling	None		None		None	
Subtotal		$144,340		$ 73,000		$359,760
Year 3						
Reservoir	4 each	$ 7,500	4 each	$ 6,000	4 each	$ 7,500
Spring	24 each	28,800	24 each	28,800	24 each	28,800
Well	None		None		None	
Pipeline	1.2 miles	9,600	1.2 miles	9,600	1.2 miles	9,600
Fence	1.5 miles	3,750	1.5 miles	3,750	1.5 miles	3,750
Cattleguard	None		None		None	
Brush Control	6,125 acres	27,580	None		58,098 acres	261,400
Brush Control & Seedling	200 acres	3,500	None		1,023 acres	17,900
Seeding	75 acres	340	None		1,027 acres	4,400
Subtotal		$ 81,070		$ 48,150		$333,350
TOTAL		$426,960		$211,850		$1,110,300

1/ Only the alternatives that would include new range improvements are presented in this table.

TABLE A1-5

ALLOTMENT ACREAGES OF PUBLIC LAND AVAILABLE FOR
LIVESTOCK GRAZING UNDER THE LOWER STOCKING ALTERNATIVE

Allotment Name	Public Acres	Acres of Severe Erosion Hazard	Unsuitable Acres 1/	Acres Available For Livestock Grazing
Baird	620	110	0	510
Baptie	799	501	0	298
Barton	880	568	0	312
Base Line	863	653	5	205
Bennett	200	175	0	25
Big Beaver	1907	1907	0	0
Brock Creek	160	58	0	102
Bullion Gulch	1454	292	132	1030
Camp Creek	2940	2348	0	592
Cherry Creek	1089	1084	0	5
Colorado Gulch	821	263	0	558
Cottonwood	3651	1157	107	2387
Courier	575	0	0	575
Cove	6967	1798	3183	1986
Cow Creek	1105	644	0	461
Crater	3522	102	179	3241
Croy Creek	8478	4033	749	3696
Deer Creek (SV)	3579	1297	134	2148
Deer Creek (NC)	3130	3130	0	0
Dry Creek	12805	10429	35	2341
Ear Creek	3632	3313	95	224
East Fork	5288	835	1111	3342
Elk Creek	1130	1089	8	33
Elk Mountain	1013	720	60	233
Elkhorn	2821	412	0	2409
Fairfield	640	562	0	78
Flat Top Sheep Co.	28099	16306	205	11588
Fork	80	27	0	53
H & S	527	250	109	168
Hailey Creek	2645	1891	0	754
Hatty Creek	220	169	0	51
Homestead	102	60	0	42
Hot Springs	952	872	0	80
Hyndman	360	0	0	360
Indian Creek	9084	1047	864	7173
Iron Mine	7220	1516	21	5683
Kent Canyon	2639	596	62	1981
Lake Creek	1504	392	0	1112
Lava Lake	10298	2381	762	7155
Little	507	465	0	42
Little Beaver	4646	4624	0	22
Little Fish Creek	1154	552	0	602
Little Rock Creek	643	9	0	634

TABLE A1-5 (cont.)

ALLOTMENT ACREAGES OF PUBLIC LAND AVAILABLE FOR
LIVESTOCK GRAZING UNDER THE LOWER STOCKING ALTERNATIVE

Allotment Name	Public Acres	Acres of Severe Erosion Hazard	Unsuitable Acres 1/	Acres Available For Livestock Grazing
Little Wood	3201	1220	1085	896
Lower Rock Creek	3978	1241	253	2484
Martin Canyon	4336	134	781	3421
McAtee	12	0	0	12
McFarland	605	544	0	61
McHan Creek	240	207	0	33
Mill Canyon	529	508	0	21
Mountain View	320	298	0	22
Muldoon	5412	2994	383	2035
Muldoon Canyon	6732	908	1229	4595
North 40	142	108	0	34
Phillips Creek	162	138	0	24
Piney	484	460	0	24
Poison Creek	5335	3778	0	1557
Poverty Flat	120	0	120	0
Powell Creek	200	125	0	75
Queens Crown	3548	3319	0	229
Quigley	5972	343	395	5234
Red Elephant	1660	0	450	1210
Road Canyon	4603	2653	171	1779
Roanhide	1108	935	16	157
Rocky Bar	647	76	0	571
Rota Run	683	528	0	155
Rough Creek	1901	1806	0	95
Scattered Tracts	325	263	0	62
Severe	200	200	0	0
Shale	607	0	0	607
Sheep Creek	4277	1780	895	1602
Sheep Point	834	778	0	56
Sheep Trail	1120	255	0	865
Shirley	107	104	3	0
Silver Creek	2834	1204	0	1630
Simpson	110	0	99	11
Slaughterhouse	3378	0	201	3177
Soldier	1008	912	5	91
South East Fork	1889	141	176	1572
South 120	120	113	0	7
Spring Creek	1567	653	177	737
Square Mountain	272	73	0	199
Stocking	2068	418	199	1451
Telfer	157	0	0	157
Three Mile	80	80	0	0
Timber Butte	5675	669	617	4389

TABLE A1-5 (cont.)

ALLOTMENT ACREAGES OF PUBLIC LAND AVAILABLE FOR
LIVESTOCK GRAZING UNDER THE LOWER STOCKING ALTERNATIVE

Allotment Name	Public Acres	Acres of Severe Erosion Hazard	Unsuitable Acres 1/	Acres Available For Livestock Grazing
Timber Gulch	2816	28	235	2553
Trail Creek	2332	1148	49	1135
Upper Fish Creek	1678	615	0	1063
Upper Rock Creek	3814	1178	0	2636
Upper Slaughterhouse	957	388	0	569
Water Gulch	731	0	47	684
West Bellevue	5510	2282	94	3134
West Fork Fish Creek	1259	896	0	363
Willow Creek	517	517	0	0
Wolftone	332	294	0	38
Woodbury	780	705	0	75
Total	240,033	106,654	15,501	117,878

1/ Unsuitable acreage is based on kind of livestock grazing the allotment.

APPENDIX 2

FORAGE ALLOCATION

FORAGE ALLOCATION METHOD

To make an equitable apportionment of forage between grazing animals, it is desirable to separate the animal preference for each plant species from the degree to which the plant can withstand grazing (or herbage removal) and still maintain itself in a viable, healthy condition. The amount of acceptable use depends upon the plants' stage of growth and development. Acceptable use is also influenced by the amount of precipitation the plant receives after grazing. The allocation method described herein is patterned after the procedures developed by Senn, Sipes, and Jensen (1980).

Plant Use Factors

A use factor was applied to the production of each plant species to arrive at the total pounds of herbage that can be removed by grazing animals without affecting the viability of the plant. The herbage that can be removed by the grazing animal is designated usable forage.

A use factor was not applied to unpalatable plants. Unpalatable plants are those not grazed by any hoofed animals except under very heavy use. However, a use factor was applied to any plant species palatable to even one animal species.

A review of the literature shows that, depending upon the time of year, most grass species will tolerate herbage removal of up to 50 percent of its annual production by weight. The literature does not contain sufficent information to quantify the proper utilization of forbs and shrubs.

The following table shows use factors, by plant class for perennial and annual species, that were applied in the SVPA.

TABLE A2-1

PERCENT OF FORAGE ALLOCATED
USING PHYSIOLOGICAL USE LIMITS

Vegetation Class	Season of Use		
	Spring	Summer	Fall-Winter
Grass	30	40	50
Forbs	25	25	25
Shrubs	25	25	25
Crested wheatgrass 1/	40	60	60
Cheatgrass 1/	50	20	30

1/ Exceptions to use limit established for grasses.

Use factors are lower in the spring and early summer for two reasons: (1) defoliation of the plant any time during the growing period is harmful to the plant, and (2) production figures are based on mature weights, but plants have actually produced only a portion of their total production during this period.

The palatable annuals such as cheatgrass were assigned a use factor of 50 percent for spring use, the species' peak growing season. They were assigned a lower use factor for other periods to avoid over-utilization of desirable perennial species.

Animal Diets

Data based on fecal analysis was used to determine the animal preference or dietary requirements. Table A2-2 reflects the diet composition on a properly grazed range for various animals.

Table A2-3 shows the pounds of forage consumed per month (30 day period) by certain grazing animals, and Table A2-4 lists the pounds of forage consumed per month by each animal based on dietary composition for each season of use.

TABLE A2-2

PERCENT DIET COMPOSITION FOR
CERTAIN GRAZING ANIMALS

Grazing Animals	Spring			Summer			Fall & Winter		
	Grass	Forb	Shrub	Grass	Forb	Shrub	Grass	Forb	Shrub
Cattle	90	3	7	90	3	7	86	0	14
Horses	78	14	8	78	14	8	78	14	8
Mule Deer	35	24	41	5	50	45	8	22	70
Antelope	22	28	50	5	39	56	5	5	90
Domestic Sheep	35	37	28	35	37	28	24	1	75
Elk	51	43	6	50	38	12	50	34	16

TABLE A2-3

POUNDS OF FORAGE CONSUMED PER MONTH
BY CERTAIN GRAZING ANIMALS

Grazing Animals	Pounds of Forage Consumed per Month
Cattle	800
Horses	1,000
Mule Deer	130
Antelope	54
Domestic Sheep	162
Elk	667

TABLE A2-4

POUNDS OF FORAGE CONSUMED BY CERTAIN ANIMALS
BY SEASON AND PLANT CLASS

Grazing Animals	Spring			Summer			Fall & Winter		
	Grass	Forb	Shrub	Grass	Forb	Shrub	Grass	Forb	Shrub
Cattle	720	24	56	720	24	56	688	0	112
Horses	780	140	80	780	140	80	780	140	80
Mule Deer	46	31	53	7	65	58	10	29	91
Antelope	12	15	27	3	21	30	3	3	48
Domestic Sheep	57	60	45	57	60	45	39	2	121
Elk	340	287	40	334	253	80	334	226	107

Forage Production Determination

Since allotments are grazed during different seasons or portions thereof, seasonal dates were established.

Spring = May 1 through June 15
Summer = June 16 through August 31
Fall-Winter = September 1 through April 30

To determine the amount of forage available for allocation, ecological sites were stratified by condition class. The total herbage production for each soil mapping unit was calculated using percent composition of each ecological site by condition class within it. Percent composition was determined from a third-order soil survey. The per-acre production of vegetation within each mapping unit was then multiplied by the percentage of the physiological use limits for each plant species within a vegetative class (Table A2-1). The following table shows how the amount of usable forage per acre was determined by season (spring, summer, fall-winter) for each mapping unit by condition class.

TABLE A2-5

PER ACRE USABLE FORAGE BY SEASON
FOR MAPPING UNIT 134 IN FAIR CONDITION 1/

Species 2/	(1) Total Production Per Acre (lbs. air dry)	Spring (2) Use Factor	Spring (3) Pounds Forage (1x2)	Summer (4) Use Factor	Summer (5) Pounds Forage (1x4)	Fall-Winter (6) Use Factor	Fall-Winter (7) Pounds Forage (1x6)
AGCAM2	.2	.30	.06	.40	.08	.50	.10
AGCR	.7	.40	.28	.60	.42	.60	.42
AGSP	49.1	.30	14.73	.40	19.64	.50	24.55
8RJA	5.9	.50	2.95	.20	1.18	.30	1.77
8RTE	3.9	.50	1.95	.20	.78	.30	1.17
CAREXX	7.3	.30	2.19	.40	2.92	.50	3.65
ELCI2	24.5	.30	7.35	.40	9.80	.50	12.25
FEID	4.7	.30	1.41	.40	1.88	.50	2.35
KOCR	2.4	.30	.72	.40	.96	.50	1.20
MEBU	.4	.30	.12	.40	.16	.50	.20
PONE3	17.8	.30	5.34	.40	7.12	.50	8.90
POSA3	5.5	.30	1.65	.40	2.20	.50	2.75
SIHY	32.0	.30	9.60	.40	12.80	.50	16.00
STOC2	7.3	.30	2.19	.40	2.92	.50	3.65
STTH2	18.6	.30	5.58	.40	7.44	.50	9.30
PPGG	.8	.30	.24	.40	.32	.50	.40
GGGG	1.4	.30	.42	.40	.56	.50	.70
GRASS SUBTOTAL	182.5		56.78		71.18		89.36
ACMI2	4.0	.25	1.00	.25	1.00	.25	1.00
AGOSEX	6.2	.25	1.55	.25	1.55	.25	1.55
ALAC4	1.3	.25	.33	.25	.33	.25	.33
ARABIX	.7	.25	.18	.25	.18	.25	.18
ASTERX	.1	.25	.03	.25	.03	.25	.03
ASTRAX	1.5	.25	.38	.25	.38	.25	.38
BALSAX	28.3	.25	7.08	.25	7.08	.25	7.08
CALOCX	1.2	.25	.30	.25	.30	.25	.30
CASTIX	5.4	.25	1.35	.25	1.35	.25	1.35
CHDO	1.0	.25	.25	.25	.25	.25	.25
CREPIX	1.0	.25	.25	.25	.25	.25	.25
ERIGEX	4.0	.25	1.00	.25	1.00	.25	1.00
ERIOGX	2.6	.25	.65	.25	.65	.25	.65
ERLA6	.7	.25	.18	.25	.18	.25	.18
EROV	.2	.25	.05	.25	.05	.25	.05
LACTUX	.1	.25	.03	.25	.03	.25	.03
LODI	1.4	.25	.35	.25	.35	.25	.35
LOMATX	1.3	.25	.33	.25	.33	.25	.33
LOTR2	2.5	.25	.63	.25	.63	.25	.63
LUPINX	53.4	.25	13.35	.25	13.35	.25	13.35
PENSTX	9.7	.25	2.43	.25	2.43	.25	2.43
PHLOXX	32.3	.25	8.08	.25	8.08	.25	8.08
POTENX	1.9	.25	.48	.25	.48	.25	.48
TARAXX	.1	.25	.03	.25	.03	.25	.03
WYETHX	.1	.25	.03	.25	.03	.25	.03
ZYGADX	1.3	.25	.33	.25	.33	.25	.33
PPFF	30.6	.25	7.65	.25	7.65	.25	7.65
AAFF	59.7	.25	14.93	.25	14.93	.25	14.93
FFFF	9.1	.25	2.28	.25	2.28	.25	2.28
FORB SUBTOTAL	261.7		65.61		65.51		65.51
AMAL2	.1	.25	.03	.25	.03	.25	.03
ARLO	52.8	.25	13.20	.25	13.20	.25	13.20
ARTRV	246.6	.25	61.65	.25	61.65	.25	61.65
CHNA2	14.3	.25	3.58	.25	3.58	.25	3.58
CHVI8	9.2	.25	2.30	.25	2.30	.25	2.30
ERHE2	.7	.25	.18	.25	.18	.25	.18
ERIOGX	8.9	.25	2.23	.25	2.23	.25	2.23
PUTR2	12.6	.25	3.15	.25	3.15	.25	3.15
RI8ESX	.5	.25	.13	.25	.13	.25	.13
TECA2	.3	.25	.08	.25	.08	.25	.08
SHRUB SUBTOTAL	346.0		86.53		86.53		86.53
TOTAL VEGETATION	790.2		208.82		223.22		241.40

1/ This example depicts the usable forage calculations for a portion of the 8aird allotment.
2/ Plant abbreviations from Idaho Plant List (SCS 1976).

The usable forage per acre by vegetative class was then multiplied by the associated acres of a particular mapping unit within an allotment. The calculations of the allowable forage production determinations and annual allocations were completed for the SVPA using automated data processing (ADP). Following is an example showing the usable forage by mapping unit and the total available forage on the Baird Allotment.

TABLE A2-6

POUNDS OF ALLOWABLE FORAGE BY SEASON
FOR PUBLIC LANDS IN THE BAIRD ALLOTMENT

Map Unit 1/	Acres	Spring Grass	Summer Grass	Fall-Winter Grass	SP-SU-FW Forbs	SP-SU-FW Shrubs
128 p	4.8	377	296	392	295	288
130 f	231.0	14,854	18,884	23,712	16,736	30,653
130 g	3.0	295	383	480	164	301
134 f	165.0	9,364	11,732	14,726	10,749	24,140
134 g	216.0	21,676	27,724	34,776	11,697	23,684
TOTAL	619.8	46,564	59,019	74,086	39,641	79,066

1/ The letters "p," "f," and "g" stand for poor, fair, and good ecological condition, respectively.

Palatable vegetation is used by livestock and wildlife; however, livestock are not allocated forage on unsuitable areas, whereas some forage from these areas is allocated to wildlife. In the allocation process forage on unsuitable areas was allocated to wildlife at a level equal to the percentage of unsuitable range in a given allotment, i.e., if an allotment had 10 percent unsuitable range, no more than 10 percent of the wildlife requirements were met from unsuitable range in that allotment.

Allocation Example

The maximum number of animals that can be grazed on an area is determined by dividing the pounds of forage produced by a class of plant by the pounds of forage required per animal month for each season. The plant class producing the least number of AUMs becomes the factor limiting the number of animals that can be grazed on the allotment. The Baird Allotment is grazed by cattle, sheep, deer, and antelope.

Maximum AUMs for each kind of animal for spring use (1.5 months) were calculated as follows:

Cattle

Grass $\frac{46{,}564 \text{ lbs.}}{720 \text{ lbs./cattle AUM}} = 65$ cattle AUMs

Forbs $\frac{39{,}641 \text{ lbs.}}{24 \text{ lbs./cattle AUM}} = 1652$ cattle AUMs

Shrubs $\frac{79{,}066 \text{ lbs.}}{56 \text{ lbs./cattle AUM}} = 1412$ cattle AUMs

In this case, grass is the limiting factor and a maximum of 43 cattle could graze in the spring period ($\frac{65 \text{ AUMs}}{1.5 \text{ months}} = 43$ animals).

Sheep

Grass $\frac{46{,}564 \text{ lbs.}}{57 \text{ lbs./sheep AUM}} = 817$ sheep AUMs

Forbs $\frac{39{,}641 \text{ lbs.}}{60 \text{ lbs./sheep AUM}} = 661$ sheep AUMs

Shrubs $\frac{79{,}066 \text{ lbs.}}{45 \text{ lbs./sheep AUM}} = 1757$ sheep AUMs

In this case, the limiting factor for sheeps is forbs. A maximum of 441 sheep could graze for the 1.5 months in the spring.

Using the same procedure, grass is limiting for deer, and forbs are limiting for antelope. A maximum of 675 deer and 1762 antelope could graze in the 1.5-month spring period.

This method only maximizes AUMs within a single season and for a single kind of animal. The AUM figures for each species are not cumulative; they are for a single season of use and kind of animal only.

Because more than one season is usually involved, a weighted dietary factor is used in determining the biological limit. For example, the Baird Allotment is grazed by cattle from June 8 through November 15, (a week in the spring, 9 weeks in the summer, and 10 weeks in the fall for a total of 20 weeks). Sheep use the allotment from May 21 through July 7 (6 weeks). Deer and antelope use the allotment from May 1 to October 30 and March 1 to September 30, respectively.

The weighted dietary requirement is determined by multiplying the forage consumed per animal month by vegetation class (see Table A2-4) by the number of weeks in each season. This subtotal is divided by the total weeks in the grazing period. The procedure for cattle and sheep is as follows.

Cattle

(Spring = 1 week, Summer = 9 weeks, Fall-winter = 10 weeks)

Grass (720 lbs. x 1 week) + (720 lbs. x 9 weeks) + (688 lbs. x 10 weeks) divided by 20 weeks = 704 lbs.

Forbs (24 lbs. x 1 week) + (24 lbs. x 9 weeks) + (0 lbs. x 10 weeks) divided by 20 weeks = 12 lbs.

Shrubs (56 lbs. x 1 week) + (56 lbs. x 9 weeks) + (112 lbs. x 10 weeks) divided by 20 weeks = 84 lbs.

Total = 800 lbs./month

Sheep

(Spring = 3 weeks, Summer = 3 weeks, Fall-winter = 0 weeks)

Grass (57 lbs. x 3 weeks) + (57 lbs. x 3 weeks) + (39 lbs. x 0 weeks) divided by 6 weeks x 4.94* = 282 lbs.

Forbs (60 lbs. x 3 weeks) + (60 lbs. x 3 weeks) + (2 lbs. x 0 weeks) divided by 6 weeks x 4.94* = 296 lbs.

Shrubs (45 lbs. x 3 weeks) + (45 lbs. x 3 weeks) + (121 lbs. x 0 weeks) divided by 6 weeks x 4.94* = 222 lbs.

Total = 800 lbs.

*A factor of 4.94 (800 lbs./cattle AUM divided by 162 lbs./sheep AUM = 4.94) was used to convert to the standard 800 lbs./AUM.

Deer

Grass (46 lbs. x 6 weeks) + (7 lbs. x 11 weeks) + (10 lbs. x 6 weeks) divided by 23 = 18 lbs.

Forbs (31 lbs. x 6 weeks) + (65 lbs. x 11 weeks) + (29 lbs. x 6 weeks) divided by 23 = 47 lbs.

Shrubs (53 lbs. x 6 weeks) + (58 lbs. x 11 weeks) + (91 lbs. x 6 weeks) divided by 23 = 65 lbs.

Antelope

Grass (12 lbs. x 6 weeks) + (3 lbs. x 11 weeks) + (3 lbs. x 13 weeks) divided by 30 = 5 lbs.

Forbs (15 lbs. x 6 weeks) + (21 lbs. x 11 weeks) + (3 lbs. x 13 weeks) divided by 30 = 12 lbs.

Shrubs (27 lbs. x 6 weeks) + (30 lbs. x 11 weeks) + (48 lbs. x 6 weeks) divided by 30 = 37 lbs.

The biological limit is weighted as follows:

Grass

	Spring	Summer	Fall-Winter
Cattle	(46,564 lbs. x 1 wk.)	+ (59,019 lbs. x 9 wks.)	+ (74,086 lbs. x 10 wks.)] divided by 20 wks. = 65,929 lbs.
Sheep	(46,564 lbs. x 3 wks.)	+ (59,019 lbs. x 3 wks.)	+ (74,086 lbs. x 0 wks.)] divided by 6 wks. = 52,792 lbs.

Because the biological limit for forbs (39,641 lbs.) and shrubs (79,066 lbs.) are the same for all seasons, weighting is not necessary.

Wildlife forage requirements were determined on the basis of animal months (number of animals x number of months of use = animal months) of big game use. Animal months of required forage were taken from Management Framework Plan Step 1 (MFP-1) recommendations (refer to MFP on file at the Shoshone District Office). The MFP-1 recommendation for wildlife was to provide forage for 66 deer months and 45 antelope months (no elk habitat was identified in the Baird Allotment). The balance of the forage would be allocated to livestock.

The Wildlife Forage Requirements (WFR) would be as follows:

Deer

Grass	66 deer months x 18 lbs./deer month =	1188 lbs.
Forbs	66 deer months x 47 lbs./deer month =	3102 lbs.
Shrubs	66 deer months x 65 lbs./deer month =	4290 lbs.

Antelope

Grass	45 antelope months x 5 lbs./antelope month =	225 lbs.
Forbs	45 antelope months x 12 lbs./antelope month =	540 lbs.
Shrubs	45 antelope months x 37 lbs./antelope month =	1665 lbs.

The total pounds of forage required by deer and antelope are:

	Grass	Forbs	Shrubs
Deer	1188	3102	4290
Antelope	225	540	1665
	1413	3642	5955

In allotments having unsuitable range, a portion of the forage on unsuitable land was allocated to wildlife. Also, any unallocated or "unused" forage was subtracted from the wildlife forage requirement. Any remaining wildlife requirement was considered competitive and was subtracted from allowable sheep forage.

For the Baird Allotment, the MFP-2 recommendation was to allocate forage for 40 cattle AUMs, 132 sheep AUMs and satisfy the wildlife needs of 66 deer months and 45 antelope months. The following section summarizes forage allocation to wildlife and livestock (no unsuitable land was involved in this Allotment).

Forage Allocation Summary for the Baird Allotment

	Grass	Forbs	Shrubs	
Available Forage (pounds)	65,929	39,641	79,066	(1)
MFP-1 Recommendation - cattle	-28,160	-480	-3,360	(2)
MFP-1 Recommendation - sheep	-37,224	-39,072	-29,304	(3)
Remaining Available Forage [1 - (2+3)]	545	89	46,402	(4)
Wildlife Forage Requirement (WFR)	1,413	3,642	5,955	(5)
Less Remaining Available Forage	-545	-89	-46,402	(4)
Net WFR (5 - 4)	868	3,553	-0-	(6)
Available Sheep Forage	37,224	39,072	29,304	(3)
Less net WFR	-868	-3,553	-0	(6)
Net sheep forage (3 - 6)	36,356	35,519	29,304	(7)
Weighted Sheep Diet	282	296	222	(8)
Net sheep AUMs (7)/(8)	129	119	132	

The allowable sheep AUMs are then 119 rather than the recommended 132. There are 13 competitive wildlife AUMs. The allocation is for 40 cattle AUMs, 119 sheep AUMs, 66 deer months, and 45 antelope months.

CRITERIA FOR DETERMINING SUITABILITY OF PUBLIC LANDS FOR LIVESTOCK GRAZING

The criteria used to determine livestock grazing suitability in the SVPA are illustrated below. Livestock may utilize unsuitable areas, but use generally occurs only after suitable areas have been overgrazed, or when livestock are driven onto unsuitable areas.

Accessibility refers to the ability of livestock to travel freely to an area. Restrictions on accessibility involve such factors as rockiness, heavy brush, and lack of trails. Accessibility can be improved by the construction of trails, removal of brush, and other land treatments or improvements.

For brevity, "U" designates unsuitable, "PS" designates potentially suitable, and "S" designates suitable.

Range Suitability Criteria - Cattle

1. Forage production potential is less than 32 acres/AUM (25#/acre) . . . . . U
1. Forage production potential is more than 32 acres/AUM (25#/acre) . . . . . (See #2)

2. Present forage production is less than 32 acres/AUM . . . . . PS or U
2. Present forage production is more than 32 acres/AUM . . . . . (See #3)

3. Area is inaccessible under present management practices . . . . . PS or U
3. Area is accessible under present management practices . . . . . (See #4)

4. Slopes more than 50% . . . . . U
4. Slopes less than 50% . . . . . (See #5)

5. Slopes 36 - 50% . . . . . (See #6)

6. Distance to water more than 0.3 miles . . . . . PS or U
6. Distance to water less than 0.3 miles . . . . . S

5. Slopes 21 - 35% . . . . . (See #7)

7. Distance to water more than 0.6 miles . . . . . PS or U
7. Distance to water less than 0.6 miles . . . . . S

5. Slopes 0 - 20% . . . . . (See #8)

8. Distance to water is more than 2 miles . . . . . PS or U
8. Distance to water is less than 2 miles . . . . . S

Range Suitability Criteria - Sheep

1. Forage production potential is less than 32 acres/AUM (25#/acre) . . . . . U
1. Forage production potential is more than 32 acres/AUM (25#/acre) . . . . . (See #2)

2. Present forage production is less than 32 acres/AUM . . . . . PS or U
2. Present forage production is more than 32 acres/AUM . . . . . (See #3)

3. Areas inaccessible under current management practices . . . . . PS or U
3. Areas accessible under current management practices . . . . . (See #4)

4. Slopes more than 60% . . . . . U
4. Slopes less than 60% . . . . . (See #5)

5. Distance to water more than 4 miles . . . . . PS or U
5. Distance to water less than 4 miles . . . . . S

APPENDIX 3

SOILS

DESCRIPTION OF SOIL ASSOCIATIONS

Povey-Vitale

This association consists of medium textured soils on mountains. They formed in residuum and colluvium weathered from sedimentary rocks. Slopes range from 15 to 75 percent.

This association makes up about 25 percent of the SVPA. It is approximately 32 percent Povey and 31 percent Vitale. The remainder consists of minor soils.

Povey soils are mostly on north- and east-facing slopes. They are deep and well drained. Typically they have a dark grayish brown gravelly loam surface layer and a brown very gravelly subsoil.

Vitale soils are on south and west exposures. They are moderately deep and well drained. Typically the surface layer is a dark grayish brown very gravelly loam and the subsoil is a brown very gravelly clay loam.

Minor soils make up 37 percent of this association: 14 percent is rock outcrop and talus; 8 percent is a soil similar to Povey on timbered north- and east-facing slopes; 8 percent is a soil similar to Vitale on very steep (45 to 75 percent) south- and west-facing slopes; and 7 percent is a shallow soil on ridges and convex north- and east-facing slopes.

The soils in this association are used primarily for livestock grazing and wildlife habitat and have a total production of about 800 pounds/acre/year. The erosion rate is moderate when the soils are well vegetated, but in their present condition the erosion rate is high.

Elksel-Hamtah

The major soils in this association are fine textured and occur on mountainsides and foothill slopes. They are formed in residuum and

colluvium weathered from volcanic rocks. Slopes range from 30 to 60 percent.

This association makes up about 24 percent of the SVPA. It is about 34 percent Elksel and 30 percent Hamtah. The remainder consists of minor soils.

Elksel soils are mostly on south and west exposures. They are deep and well drained. Typically they have a grayish brown very cobbly loam surface layer and a yellowish brown extremely cobbly clay subsoil.

Hamtah soils occur on north- and east-facing slopes. They are deep and well drained. Typically the surface layer is a dark brown cobbly loam and the subsoil is a yellowish brown very gravelly clay loam.

Minor soils make up 36 percent of this association: 12 percent is an eroded, moderately deep soil similar to Hamtah on north and east exposures; 11 percent is an eroded Starhope on south- and west-facing slopes; 9 percent is rock outcrop; 2 percent is Starhope; and 2 percent is a soil similar to Starhope, but deeper, on north- and east-facing slopes.

This association is used mainly for livestock grazing and wildlife habitat and has a total production of about 800 pounds/acre/year. The erosion rate is high when the soils are well vegetated, but in their present condition the erosion rate is very high.

Moonstone-Earcree

This association consists of moderately coarse-textured soils on foothills and mountains. They formed in residuum and colluvium weathered from granitic rocks. Slopes range from 4 to 60 percent.

This association makes up about 17 percent of the SVPA. It is about 46 percent Moonstone and 33 percent Earcree. The rest are minor soils.

Moonstone soils are on south and west exposures. They are moderately deep and well drained. Typically the surface layer is a dark grayish brown gravelly coarse sandy loam and the subsoil is a pale brown gravelly coarse sandy loam.

Earcree soils are mainly on north- and east-facing slopes. They are deep to very deep and well drained. Typically they have a dark grayish brown gravelly coarse sandy loam surface layer and a pale brown gravelly coarse sandy loam substratum.

Minor soils make up 21 percent of this association: 9 percent is a soil similar to Simonton on toe slopes and along drainageways; 5 percent

is a soil similar to Earcree on timbered north- and east-facing slopes; 4 percent is rock outcrop; and 3 percent is a soil similar to Moonstone that is less than 20 inches from bedrock.

The soils in this association are used primarily for livestock grazing and wildlife habitat and have a total production of about 1000 pounds/acre/year. The erosion rate is moderate when the soils are well vegetated, but in their present condition the rate is high.

Vitale-Blackspar-Lavacreek

The major soils in this association are medium textured and occur on mountains. They formed in residuum derived from sedimentary rocks. Slopes range from 15 to 75 percent.

This association makes up about 12 percent of the SVPA. It is about 29 percent Vitale soils, 20 percent Blackspar and 17 percent Lavacreek. The rest are minor soils.

Vitale soils are on south and west exposures. They are moderately deep and well drained. Typically the surface layer is a dark grayish brown very gravelly loam and the subsoil is a brown very gravelly clay loam.

Blackspar soils occur on eroded, south- and west-facing slopes. They are shallow and well drained. Typically they have a brown very cobbly loam surface layer and a light yellowish brown extremely cobbly heavy loam subsoil.

Lavacreek soils occur mainly on north- and east-facing slopes. They are deep and well drained. Typically the surface layer is a dark brown very gravelly silt loam and the subsoil is a yellowish brown extremely cobbly loam.

Minor soils make up 34 percent of this association: 13 percent is Povey; 9 percent is a shallow soil on ridges and convex north- and east-facing slopes; and 9 percent is rock outcrop.

This association is used mainly for livestock grazing and wildlife habitat and has a total production of about 800 pounds/acre/year. The erosion rate is moderate when the soils are well vegetated, but in their present condition the rate is high.

Gaib-Mulshoe-Winu

This association consists of moderately fine textured soils on foothills and mountains. They formed in residuum and colluvium derived from volcanic rocks. Slopes range from 2 to 60 percent.

This association makes up about 8 percent of the SVPA. It is about 34 percent Gaib, 19 percent Mulshoe and 18 percent Winu. The rest consists of minor soils.

Gaib soils are on ridges and eroded south- and west-facing slopes. They are shallow and well drained. Typically the surface layer is a brown very gravelly loam and the subsoil is a dark yellowish brown very cobbly clay loam.

Mulshoe soils are on south and west exposures. They are moderately deep and well drained. Typically they have a brown very cobbly loam surface layer and a dark yellowish brown extremely cobbly clay loam subsoil.

Winu soils are mostly on north- and east-facing slopes. They are moderately deep and well drained. Typically the surface layer is a dark grayish brown stony loam and the subsoil is a yellowish brown gravelly clay loam.

Minor soils make up 29 percent of this association: 15 percent is rock outcrop; 10 percent is Elkcreek on south and west exposures; 2 percent is Moonstone; and 1 percent is Polecreek.

The soils in this association are used for livestock grazing and wildlife habitat and have a total production of about 650 pounds/acre/year. The erosion rate is moderate when the soils are well vegetated, but in their present condition the erosion rate is high.

Starhope-California

This association consists of fine textured soils on lava plains and low hills. They formed in residuum weathered from volcanic rocks. Slopes range from 2 to 30 percent.

This association makes up about 5 percent of the SVPA. It is about 26 percent Starhope and 25 percent California. The rest are minor soils.

Starhope soils are on broad, convex slopes and south- and west-facing slopes. They are moderately deep and well drained. Typically the surface layer is a grayish brown loam and the subsoil is a brown clay.

California soils are on south- and west-facing slopes. They are moderately deep to a duripan and well drained. Typically they have a brown loam surface layer and a brown clay subsoil.

Minor soils make up 48 percent of this association: 15 percent is a soil similar to Starhope, but deeper, on north- and east-facing slopes; 15 percent is a soil similar to California, but deeper to a duripan, on alluvial fans and terraces; 8 percent is Elksel on steep south and west exposures; 6 percent is a very deep, somewhat poorly drained soil along drainageways; and 4 percent is Hamtah on steep north- and east-facing slopes.

The soils in this association are used mainly for livestock grazing and wildlife habitat and have a total production of about 900 pounds/acre/year. Erosion rates are low when the soils are well vegetated, but in their present condition the rates are moderate.

Elkcreek-Laurentzen-Polecreek

The major soils in this association are moderately fine and fine textured soils on lava plains and low hills. They formed in residuum weathered from volcanic rocks. Slopes range from 0 to 30 percent.

This association makes up about 3 percent of the SVPA. It is about 37 percent Elkcreek and similar soils, 32 percent Laurentzen and 15 percent Polecreek. The rest are minor soils.

Elkcreek soils are on broad, convex slopes. They are moderately deep and well drained. Typically they have a grayish brown loam surface layer and a light yellowish brown clay loam subsoil.

Laurentzen soils are in depressions, swales, and on smooth, broad slopes. They are very deep and well drained. Typically the surface layer is a dark brown silt loam and the subsoil is a yellowish brown clay loam.

Polecreek soils are on convex ridges and in eroded drainageways. They are shallow and well drained. Typically they have a dark brown very stony loam surface layer. The subsoil is a brown very cobbly clay.

Minor soils make up 16 percent of this association: 9 percent is a deep, fine textured soil; 4 percent is a moderately deep, fine textured soil; and 3 percent is rock outcrop.

This soil association is used mostly for livestock grazing and wildlife habitat and has a total production of about 900 pounds/acre/year. Erosion rates are low when the soils are well vegetated, but in their present condition the rates are moderate.

Deerhorn-Rehfield-Rock Outcrop

The soils in this association are medium textured and formed in aeloian sands over basalt. Slopes range from 0 to 20 percent.

This association makes up less than 1 percent of the SVPA. It is 40 percent Deerhorn, 20 percent Rehfield, and 20 percent rock outcrop. Minor soils make up the remainder.

Deerhorn soils are on convex ridges and slopes. They are moderately deep and well drained. Typically the surface layer is a brown fine sandy loam and the subsoil is brown loam.

Rehfield soils are found in concave depressions. They are moderately deep and well drained. Typically the surface layer is a grayish brown fine sandy loam and the subsoil is pale brown loam.

Rock outcrop consists of outcrops of basalt and very shallow soil material over bedrock that supports little or no vegetation.

The minor soils constitute 20 percent of this association: 10 percent is a shallow soil similar to Deerhorn; 5 percent is a shallow soil similar to Rehfield; and 5 percent is a shallow, alkalai soil.

The soils in this association are used for livestock grazing and wildlife habitat and have a total production of about 650 pounds/acre/year. Erosion rates are very low when the soils are well vegetated, but in their present condition the rates are low. Wind erosion is a serious problem on these soils when vegetation is removed.

Lavaflow-Cinderhurst

This association consists primarily of recent lava flows and medium textured soils formed in volcanic ash and loess. Slopes range from 2 to 15 percent.

This association makes up about 1 percent of the SVPA. It is about 79 percent lava flow and 17 percent Cinderhurst. The rest consists of a minor soil.

Lavaflow consists of large areas of unvegetated flow basalt associated with the recent volcanic activity of the Craters of the Moon Flow.

Cinderhurst soils are in depressions and cracks. They are very shallow and well drained. Typically the surface layer is a brown extremely cobbly silt loam and the subsoil is a yellowish brown very cobbly silt loam.

One minor soil makes up 4 percent of this association and is similar to Cinderhurst, but is greater than 20 inches deep.

This association is used mainly for wildlife habitat and has a total production of about 150 pounds/acre/year. The erosion rate is very low.

Simonton-Rands

This association consists of moderately fine and fine textured soils on alluvial fans and terraces. They formed in mixed alluvium on 0 to 30 percent slopes.

This association makes up about 2 percent of the SVPA. It is about 44 percent Simonton and 21 percent Rands. Minor soils make up the remainder.

Simonton soils are on smooth, broad slopes. They are very deep and well drained. Typically they have a grayish brown silt loam surface layer and a light brown clay loam subsoil.

Rands soils are on broad convex slopes. They are very deep and well drained. Typically the surface layer is a brown loam and the subsoil is a brown clay.

Minor soils make up 35 percent of this association: 12 percent is a soil similar to Simonton in depressions and swales; 12 percent is a moderately well drained soil along drainageways; 6 percent is a somewhat poorly drained soil along drainageways; and 5 percent is a poorly drained soil along stream bottoms.

This association is used primarily for livestock grazing and wildlife habitat and has a total production of about 1200 pounds/acre/year. The erosion rate is low when the soils are well vegetated, but in their present condition the rate is moderate.

Drage-Molyneux

This association consists of moderately fine textured soils on alluvial fans and terraces. They formed in mixed alluvium on 2 to 15 percent slopes.

This association makes up about 3 percent of the SVPA. It is about 62 percent Drage and 28 percent Molyneux. A minor soil makes up the remainder.

Drage soils are very deep and well drained. Typically the surface layer is a dark grayish brown gravelly loam and the subsoil is a yellowish brown very gravelly clay loam.

Molyneux soils are very deep and well drained. Typically they have a dark grayish brown loam surface layer and a brown clay loam subsoil.

One minor soil makes up 10 percent of this association and is similar to Drage, but moister.

This association is used mainly for livestock grazing and wildlife habitat and has a total production of about 1000 pounds/acre/year. The erosion rate is very low when the soils are well vegetated, but in their present condition the rate is low.

Agricultural Land

This association consists of unidentified alluvial soils used primarily for farming.

TABLE A3-1

SOIL ASSOCIATIONS BY ALLOTMENT

Allotment Name	Soil Association Number 1/	Acres	Percent
Baird	2	1945	50 %
	6	1942	50 %
Baptie	1	180	5 %
	2	1516	47 %
	5	1150	35 %
	11	435	13 %
Barton	2	820	41 %
	5	967	49 %
	11	205	10 %
Baseline	3	2452	86 %
	10	385	14 %
Bennett	2	373	74 %
	11	130	26 %

TABLE A3-1 (cont.)

SOIL ASSOCIATIONS BY ALLOTMENT

Allotment Name	Soil Association Number 1/	Acres	Percent
Big Beaver	3	3285	100 %
Brock Creek	3	784	89 %
	11	100	11 %
Bullion Gulch	1	2180	85 %
	5	385	15 %
Camp Creek	3	6387	83 %
	5	435	6 %
	7	740	10 %
	10	100	1 %
Cherry Creek	3	1099	100 %
Colorado Gulch	1	421	51 %
	3	400	49 %
Cottonwood	4	6341	100 %
	9	25	-0-
Courier	1	575	100 %
Cove	1	6142	54 %
	2	4455	39 %
	11	795	7 %
Cow Creek	3	4400	64 %
	7	1220	18 %
	10	1220	18 %
Crater	4	2430	56 %
	9	1889	44 %
Croy Creek	1	3730	25 %
	3	7840	51 %
	5	1410	9 %
	7	2230	15 %
Deer Creek (SV)	1	5158	68 %
	3	770	10 %
	5	1715	22 %
Deer Creek (NC)	3	4908	87 %
	5	720	13 %

TABLE A3-1 (cont.)

SOIL ASSOCIATIONS BY ALLOTMENT

Allotment Name	Soil Association Number 1/	Acres	Percent
Dry Creek	1	795	5 %
	2	4787	86 %
	6	130	1 %
	11	1330	8 %
Ear Creek	3	3702	100 %
East Fork	1	665	6 %
	2	255	2 %
	4	7626	67 %
	5	130	1 %
	7	1630	14 %
	11	1090	10 %
Elk Creek	3	1350	35 %
	5	2502	65 %
Elk Mountain	1	330	19 %
	2	795	45 %
	5	590	33 %
	11	50	3 %
Elkhorn	1	4366	81 %
	2	1000	18 %
	11	50	1 %
Fairfield	3	741	48 %
	10	795	52 %
Flat Top Sheep Co.	1	1145	19 %
	2	0411	51 %
	5	3225	5 %
	6	2105	20 %
	7	2405	4 %
	11	690	1 %
Fork	3	75	31 %
	10	165	69 %
H & S	1	775	51 %
	2	640	42 %
	4	100	7 %
Hailey Creek	1	510	8 %
	2	5539	92 %

TABLE A3-1 (cont.)

SOIL ASSOCIATIONS BY ALLOTMENT

Allotment Name	Soil Association Number 1/	Acres	Percent
Hatty Creek	3	801	100 %
Homestead	1	205	34 %
	3	404	66 %
Hot Springs	3	1280	29 %
	5	2953	68 %
	10	140	3 %
Hyndman	1	550	100 %
Indian Creek	1	9976	79 %
	2	1460	11 %
	5	1280	10 %
Iron Mine	1	2990	21 %
	2	260	2 %
	4	10714	75 %
	5	280	2 %
	11	25	-0-
Kent Canyon	1	2075	72 %
	3	820	28 %
Lake Creek	1	1019	68 %
	2	485	32 %
Lava Lake	4	12469	78 %
	9	1185	7 %
	11	2430	15 %
Little	2	577	92 %
	11	50	8 %
Little Beaver	3	4757	82 %
	5	1075	18 %
Little Fish Creek	1	20	-0-
	2	205	5 %
	6	4138	95 %
Little Rock Creek	3	180	9 %
	10	1780	91 %

TABLE A3-1 (cont.)

SOIL ASSOCIATIONS BY ALLOTMENT

Allotment Name	Soil Association Number 1/	Acres	Percent
Little Wood	1	2796	49 %
	2	2640	47 %
	11	205	4 %
Lower Rock Creek	1	460	11 %
	3	2636	63 %
	10	1025	24 %
	11	105	2 %
Martin Canyon	1	4374	95 %
	2	230	5 %
McAtee	1	34	100 %
McFarland	1	770	47 %
	2	675	41 %
	water	205	12 %
McHan Creek	3	350	73 %
	10	130	27 %
Mill Canyon	3	75	4 %
	5	1404	81 %
	10	260	15 %
Mountain View	5	640	100 %
Muldoon	1	4225	31 %
	2	7489	55 %
	5	435	3 %
	11	1410	11 %
Muldoon Canyon	1	8308	89 %
	2	1050	11 %
North 40	6	1595	100 %
Phillips Creek	3	222	69 %
	10	100	31 %
Piney	3	340	43 %
	5	360	44 %
	10	100	13 %

TABLE A3-1 (cont.)

SOIL ASSOCIATIONS BY ALLOTMENT

Allotment Name	Soil Association Number 1/	Acres	Percent
Poison Creek	3	360	6 %
	5	1870	29 %
	7	3909	61 %
	10	255	4 %
Poverty Flat	1	120	100 %
Powell Creek	3	25	2 %
	5	1256	98 %
Queens Crown	2	3165	59 %
	5	1690	32 %
	11	480	9 %
Quigley	1	9558	96 %
	2	360	4 %
Red Elephant	1	2240	100 %
Road Canyon	1	850	14 %
	2	1230	20 %
	5	3268	55 %
	6	690	11 %
Roanhide	3	1108	100 %
Rocky Bar	2	25	1 %
	5	360	9 %
	11	3454	90 %
Rota Run	1	25	4 %
	5	658	96 %
Rough Creek	3	4165	100 %
Scattered Tracts	1	25	1 %
	3	5163	94 %
	7	240	4 %
	10	75	1 %
Severe	3	480	100 %
Shale	4	526	70 %
	7	230	30 %

TABLE A3-1 (cont.)

SOIL ASSOCIATIONS BY ALLOTMENT

Allotment Name	Soil Association Number 1/	Acres	Percent
Sheep Creek	1	1640	17 %
	2	7786	82 %
	11	75	1 %
Sheep Point	3	1540	97 %
	10	50	3 %
Sheep Trail	7	1093	96 %
Shirley	5	783	87 %
	7	40	4 %
	10	80	9 %
Silver Creek	2	460	13 %
	5	1530	43 %
	8	1560	44 %
Simpson	4	155	20 %
	11	621	80 %
Slaughterhouse	1	7031	100 %
Soldier	3	3401	100 %
South East Fork	1	1889	100 %
South 120	2	2461	82 %
	6	540	18 %
Spring Creek	1	720	33 %
	2	180	8 %
	5	975	45 %
	11	310	14 %
Square Mountain	5	90	12 %
	7	310	40 %
	10	364	48 %
Stocking	1	330	9 %
	2	770	20 %
	4	2424	62 %
	11	330	9 %
Telfer	4	1047	82 %
	11	230	18 %

TABLE A3-1 (cont.)

SOIL ASSOCIATIONS BY ALLOTMENT

Allotment Name	Soil Association Number 1/	Acres	Percent
Three Mile	3	2424	94 %
	10	160	6 %
Timber Butte	2	1255	14 %
	4	6270	72 %
	9	1180	14 %
Timber Gulch	1	3500	99 %
	11	50	1 %
Trail Creek	1	1100	18 %
	2	2196	35 %
	4	2125	34 %
	5	845	13 %
Upper Fish Creek	1	1602	50 %
	2	1130	35 %
	4	460	15 %
Upper Rock Creek	1	3193	62 %
	3	1870	36 %
	11	75	2 %
Upper Slaughterhouse	1	1604	73 %
	2	590	27 %
Water Gulch	1	971	100 %
West Bellevue	1	3003	49 %
	3	3150	51 %
West Fork Fish Creek	1	1000	14 %
	2	6121	83 %
	4	205	3 %
Willow Creek	3	2490	71 %
	5	1025	29 %
Wolftone	3	351	100 %
Woodbury	2	1371	85 %
	6	190	12 %
	11	50	3 %

1/ The numbers correspond to the soil associations shown on Map 3-2 and described in this appendix.

TABLE A3-2

SUMMARY OF SOIL SERIES CHARACTERISTICS

Series Name	Position on Landscape Parent Material and Slope Range (Percent)	Soil Profile: Surface Layer	Soil Profile: Subsoil or Substratum	Organic Matter Content/ Productivity (lbs/ac/yr)	Depth (inches)	Water Holding Capacity	Permeability	Surface Runoff	Erosion Susceptibility
Blackspar	mountainsides quartzitic sandstone and conglomerate 30-75	brown very cobbly loam pH 6.8	light yellowish brown extremely cobbly loam pH 7.2	low/400	10-20	very low	moderate	rapid	moderate to high
California	lava plains and hills volcanic tuff 2-30	brown loam pH 6.6	brown clay pH 6.8	moderately low/500	20-40	low	slow	medium to rapid	moderate to high
Cinderhurst	recent lava flows volcanic ash and loess 2-15	brown extremely cobbly silt loam pH 6.2	yellowish brown very cobbly silt loam pH 6.4	low/300	4-10	very low	moderately rapid	medium	slight
Deerhorn	lava plains aeolian sands and basalt 2-15	brown fine sandy loam pH 6.4	brown loam pH 7.4	moderately low/900	20-40	low	moderate	slow to medium	slight to high
Drage	alluvial fans and terraces mixed alluvium 2-15	dark grayish brown gravelly loam pH 6.8	yellowish brown very gravelly clay loam pH 7.2	moderately low to medium/1000	60+	low	moderately slow	medium	slight to moderate
Earcree	foothill slopes and mountainsides granitic rocks 4-60	dark grayish brown gravelly coarse sandy loam pH 6.6	pale brown gravelly coarse sandy loam pH 6.8	medium to high/1300	40-60+	moderate	moderately rapid	medium	moderate to high
Elkcreek	lava plains and hills basalt and andesite 0-30	grayish brown loam pH 6.9	light yellowish brown clay loam pH 7.2	moderately low to medium/1100	20-40	low	moderately slow	slow to rapid	slight to high
Elksel	foothill slopes and mountainsides lavas, ranging in composition from rhyolite to basalt 30-60	grayish brown very cobbly loam pH 6.4	yellowish brown extremely cobbly clay pH 7.2	moderately low to medium/900	40-60	low	moderately slow	medium to rapid	moderate to high
Gaib	foothills and mountains lavas, ranging in composition from rhyolite to basalt 2-60	brown very gravelly loam pH 6.4	dark yellowish brown very cobbly clay loam pH 6.8	moderately low/500	10-20	very low	moderately slow	medium to rapid	moderate to high
Hamtah	foothill slopes and mountainsides latite, andesite, and welded tuff 30-60	dark brown cobbly loam pH 6.6	yellowish brown very gravelly clay loam pH 6.8	medium to high/1000	40-60	moderate	slow	medium	moderate to high
Laurentzen	lava plains and hills basalt 0-30	dark brown silt loam pH 6.6	yellowish brown clay loam pH 7.0	medium to high/1100	60+	high	moderately slow	slow to rapid	slight to high
Lavacreek	mountains volcanic ash over quartzitic sandstone and limestone 15-60	dark brown very gravelly silt loam pH 6.6	yellowish brown extremely cobbly loam pH 6.8	medium to high/1100	40-60	moderate	moderate	medium	moderate to high
Molyneux	alluvial fans and terraces mixed alluvium 2-15	dark grayish brown loam pH 6.2	brown clay loam pH 6.6	moderately low to medium/1100	60+	high	moderately slow	medium	slight to moderate
Moonstone	foothill slopes and mountainsides granitic rocks 4-60	dark grayish brown gravelly coarse sandy loam pH 6.8	pale brown gravelly coarse sandy loam pH 6.6	moderately low to medium/1000	20-40	low	moderately rapid	medium	moderate to high
Mulshoe	foothill slopes and mountainsides lavas ranging in composition from rhyolite to basalt 4-60	brown very cobbly loam pH 6.8	dark yellowish brown extremely cobbly clay loam pH 7.0	moderately low to medium/1000	20-40	low	moderately slow	medium to rapid	moderate to high

TABLE A3-2 (cont.)

SUMMARY OF SOIL SERIES CHARACTERISTICS

Series Name	Position on Landscape Parent Material and Slope Range (Percent)	Soil Profile: Surface Layer	Soil Profile: Subsoil or Substratum	Organic Matter Content/ Productivity (lbs/ac/yr)	Depth (inches)	Water Holding Capacity	Permeability	Surface Runoff	Erosion Susceptibility
Polecreek	lava plains and hills basalt 0-30	dark brown very stony loam pH 6.4	brown very cobbly clay pH 6.4	moderately low/400	10-20	very low	slow	medium to rapid	moderate to high
Povey	mountainsides quartzitic sandstone and limestone 15-60	dark grayish brown gravelly loam pH 6.6	brown very gravelly loam pH 6.8	medium to high/1200	40-60	moderate	moderate	medium	moderate
Rands	alluvial fans and terraces mixed alluvium 0-20	brown loam pH 6.3	brown clay pH 6.6	moderately low/500	60+	high	slow	slow to rapid	slight to high
Rehfield	lava plains aeolian sands and basalt 0-20	grayish brown fine sandy loam pH 6.2	pale brown loam pH 6.6	moderately low to medium/900	20-40	low to moderate	moderate	slow to medium	slight to moderate
Simonton	alluvial fans and terraces mixed alluvium 0-30	grayish brown silt loam pH 6.8	light brown clay loam pH 6.6	moderately low/1100	60+	high	moderately slow	slow to rapid	slight to high
Starhope	lava plains and hills andesite, latite, and welded tuff 2-30	grayish brown loam pH 6.6	brown clay pH 6.8	moderately low to medium/900	20-40	low	slow	medium to rapid	moderate to high
Vitale	mountainsides quartzitic sandstone and limestone 30-60	dark grayish brown very gravelly loam pH 6.5	brown very gravelly clay loam pH 7.6	moderately low to medium/900	20-40	moderate	moderate	medium	moderate
Winu	foothill slopes and mountainsides lavas, ranging in composition from rhyolite to basalt 30-60	dark grayish brown stony loam pH 7.0	yellowish brown gravelly clay loam pH 7.4	medium to high/1100	20-40	moderate	moderately slow	medium to rapid	medium to high

Musgrave Equation

Erosion rates were calculated using the Musgrave Equation as outlined in the BLM Manual Section 7317.22. This equation, developed by G. W. Musgrave, gives an estimate of sheet erosion by water. The equation was developed from measured erosion rates on plots with 10 percent slope, 72.6 feet slope length, and a 30-minute rainfall of 1.375 inches. The equation is as follows:

$$E = FR\,(S/10)^{1.35}\,(L/72.6)^{0.35}\,(P/1.375)^{1.75}$$

Where:

E = sheet erosion in tons/acre/year
F = basic erosion rate of bare soil in tons/acre/year
R = cover factor
S = average slope of contributing area in percent
L = length of longest contributing meander waterway in feet
P = maximum 2-year frequency, 30-minute rainfall in inches

Existing Erosion Rates

The data gathered during the soil and vegetation inventories were used in conjunction with the nomographs and illustrations in BLM Manual 7317.22 to solve the equation. Erosion factors were calculated for each detailed soil mapping unit and a weighted average of soil erosion rates by soil association for each allotment was computed. These erosion rates are displayed in Table 3-G.

Changes in Erosion Rates

The main variable in the Musgrave Equation that would be affected by the proposals in this EIS is the Cover Factor (R), which is inversely related to the percent of ground cover. The Basic Erosion Rate (F) would increase slightly in areas of livestock concentration because soil infiltration and permeability would decrease due to compaction. The other variables would be essentially independent of grazing management and were considered constant for purposes of analysis. Estimated changes in

cover resulting from forage allocation were based on proposed adjustments in stocking rates. A reduction in livestock numbers would increase the amount of vegetation and litter remaining on the ground. This would result in an increase in cover and a decrease in the Cover Factor. An increase in livestock numbers would have the opposite effect.

The impacts on soil erosion due to grazing management, which includes grazing systems, range improvements, seasons of use and kinds of livestock, were based on estimated changes in vegetation production in the long term (20 years). An increase in production would increase cover and a decrease in production would decrease cover causing the Cover Factor to vary inversely.

Changes in soil erosion due to range improvements would be dependent on the kind of treatment. For each treatment the degree of disturbance was evaluated to estimate the decrease in ground cover (estimated to be 25 to 80 percent in the short term). Decreases in ground cover would cause the Cover Factor and erosion rates to increase. The majority of areas were predicted to revegetate within approximately two years, reducing erosion rates accordingly. In the long term, reduction in cover and increased compaction in livestock concentration areas would cause the erosion rates to increase.

TABLE A3-3

EROSION RATES BY ALLOTMENT 1/

Allotment	Present T/Ac/Yr 2/	Proposed Action T/Ac/Yr	No Change T/Ac/Yr	No Grazing T/Ac/Yr	Lower Stocking T/Ac/Yr	Greater Production T/Ac/Yr
Baird	5.0	5.3	5.0	4.5	5.3	6.0
Baptie	6.1	6.6	6.1	5.4	6.0	7.2
Barton	6.2	5.6	6.4	4.9	5.3	6.1
Base Line	4.5	4.5	4.5	3.3	3.8	4.5
Bennett	5.9	6.6	5.9	5.1	5.3	6.6
Big Beaver	4.8	4.4	4.8	3.4	3.6	5.0
Brock Creek	4.2	4.4	4.2	3.5	4.2	5.1
Bullion Gulch	5.0	5.7	5.0	3.8	5.7	5.4
Camp Creek	4.6	4.5	4.6	3.4	3.8	4.4
Cherry Creek	4.8	4.8	4.8	4.3	4.4	5.0
Colorado Gulch	5.0	5.0	5.0	4.5	4.8	5.7
Cottonwood	6.2	6.3	6.2	5.4	6.3	6.6
Courier	4.8	4.0	4.8	3.4	4.4	5.5
Cove	5.8	5.2	5.9	4.4	5.0	5.8
Cow Creek	3.8	3.7	3.8	3.2	3.5	4.2
Crater	2.0	2.0	2.0	1.6	1.8	2.0
Croy Creek	4.8	4.8	4.8	3.6	4.5	4.8
Deer Creek (SV)	5.3	4.9	5.3	3.9	4.9	5.6
Deer Creek (NC)	4.9	4.6	5.0	3.4	3.4	4.9
Dry Creek	7.0	6.2	7.2	5.4	5.8	6.5

TABLE A3-3 (cont.)

EROSION RATES BY ALLOTMENT 1/

Allotment	Present T/Ac/Yr 2/	Proposed Action T/Ac/Yr	No Change T/Ac/Yr	No Grazing T/Ac/Yr	Lower Stocking T/Ac/Yr	Greater Production T/Ac/Yr
Ear Creek	4.8	4.8	4.8	3.6	3.7	5.1
East Fork	4.9	4.4	4.9	3.7	4.6	4.6
Elk Creek	5.5	4.4	5.7	3.2	3.2	5.0
Elk Mountain	6.3	4.6	6.6	4.1	4.6	4.6
Elkhorn	5.2	5.6	5.2	4.0	5.6	6.1
Fairfield	3.2	3.2	3.3	2.8	2.9	3.4
Flat Top Sheep Co.	5.8	6.0	5.8	5.1	5.6	6.2
Fork	2.6	2.8	2.6	2.4	2.7	4.9
H & S	5.9	5.7	5.9	4.9	5.5	6.1
Hailey Creek	7.3	7.7	7.3	6.8	7.5	8.3
Hatty Creek	4.8	5.0	4.8	4.3	4.6	5.0
Homestead	5.0	5.1	5.0	4.3	4.7	5.6
Hot Springs	5.6	5.2	5.7	4.4	5.4	5.9
Hyndman	4.8	3.6	4.8	3.4	4.6	5.5
Indian Creek	5.1	5.5	5.1	3.9	5.3	5.6
Iron Mine	5.3	5.5	5.3	4.1	5.5	5.9
Kent Canyon	5.1	4.5	5.1	3.6	5.1	4.7
Lake Creek	5.8	6.3	5.8	5.4	6.5	7.3
Lava Lake	4.1	4.0	4.1	3.1	4.1	4.8
Little	7.1	6.8	7.1	5.6	5.8	6.4
Little Beaver	5.1	5.3	5.1	4.2	4.2	4.9
Little Fish Creek	2.2	2.1	2.3	1.9	2.0	2.2
Little Rock Creek	1.8	1.7	1.8	1.5	1.7	2.3
Little Wood	6.0	6.0	6.0	4.8	5.4	6.0
Lower Rock Creek	4.1	4.1	4.1	3.3	3.8	4.1
Martin Canyon	4.9	5.5	4.9	4.1	5.5	6.1
McAtee	4.8	4.8	4.8	4.8	4.8	4.8
McFarland	4.5	4.1	4.5	3.3	3.4	4.3
McHan Creek	4.0	3.5	4.1	2.2	2.7	3.7
Mill Canyon	5.5	5.2	5.5	4.6	4.7	5.5
Mountain View	6.0	5.2	6.2	4.4	4.6	5.5
Muldoon	6.1	6.2	6.1	4.4	5.6	5.8
Muldoon Canyon	5.1	5.5	5.1	3.9	5.3	5.5
North 40	2.0	2.1	2.0	1.7	1.8	2.0
Phillips Creek	3.9	3.7	3.9	3.0	3.3	3.6
Piney	5.0	4.6	5.0	3.4	3.5	4.9
Poison Creek	3.5	3.4	3.6	3.0	3.2	3.7
Poverty Flat	4.8	4.8	4.8	4.8	4.8	4.8
Powell Creek	6.0	5.4	6.1	4.0	4.6	5.5
Queens Crown	6.6	6.6	6.6	5.7	5.9	6.3
Quigley	4.8	5.2	4.8	3.6	5.2	5.5
Red Elephant	4.8	5.0	4.8	3.8	5.0	6.0
Road Canyon	5.7	5.6	5.7	4.8	5.3	5.5
Roanhide	4.8	5.0	4.8	4.4	4.8	5.1

TABLE A3-3 (cont.)

EROSION RATES BY ALLOTMENT 1/

Allotment	Present T/Ac/Yr 2/	Proposed Action T/Ac/Yr	No Change T/Ac/Yr	No Grazing T/Ac/Yr	Lower Stocking T/Ac/Yr	Greater Production T/Ac/Yr
Rocky Bar	1.4	1.4	1.4	1.2	1.4	1.4
Rota Run	6.0	5.8	6.0	5.2	5.8	6.8
Rough Creek	4.8	4.6	4.9	3.0	3.1	4.0
Scattered Tracts	4.7	4.6	4.7	4.3	4.6	4.5
Severe	4.8	5.1	4.8	4.5	4.5	5.5
Shale	5.0	4.3	5.2	3.4	4.5	4.6
Sheep Creek	6.9	7.4	6.9	5.9	6.9	7.1
Sheep Point	4.7	4.5	4.7	3.6	3.8	4.5
Sheep Trail	2.0	2.4	2.0	1.8	2.3	2.6
Shirley	5.6	4.1	5.6	4.1	4.1	4.3
Silver Creek	3.9	3.9	3.9	3.4	3.7	3.9
Simpson	2.1	2.7	2.1	2.0	2.7	2.5
Slaughterhouse	4.8	5.5	4.8	3.6	5.7	5.5
Soldier	4.8	5.0	4.8	4.4	4.6	5.1
South East Fork	4.8	4.8	4.8	3.8	4.8	4.4
South 120	6.7	6.0	6.8	3.8	4.1	6.3
Spring Creek	5.2	5.2	5.2	4.7	5.2	5.7
Square Mountain	2.4	2.3	2.4	2.0	2.3	2.7
Stocking	5.6	5.3	5.6	4.7	5.3	6.4
Telfer	4.5	5.5	4.5	3.3	5.1	5.6
Three Mile	4.6	4.1	4.7	2.5	2.5	4.1
Timber Butte	4.0	3.9	4.0	3.1	3.9	4.0
Timber Gulch	4.8	5.0	4.8	4.4	5.0	6.1
Trail Creek	6.2	6.9	6.2	4.5	5.8	6.2
Upper Fish Creek	5.9	6.4	5.9	5.3	6.4	7.3
Upper Rock Creek	5.0	5.7	5.0	4.3	5.5	5.5
Upper Slaughterhouse	5.5	6.7	5.5	4.7	5.9	6.0
Water Gulch	4.8	4.8	4.8	3.3	4.8	4.0
West Bellevue	5.0	5.1	5.0	3.9	5.0	5.4
West Fork Fish Creek	7.0	7.6	7.0	6.0	6.7	7.8
Willow Creek	5.2	4.6	5.4	3.4	3.5	4.8
Wolftone	4.8	4.8	4.8	4.5	4.8	5.6
Woodbury	6.9	6.4	7.0	5.3	5.5	6.3
Total (SVPA Average)	5.2	5.2	5.2	4.2	4.9	5.5

1/ The erosion rates given for the proposed action and alternatives are for the long term, and are based on changes in stocking level and predicted changes in total vegetation production. They do not include impacts from concentration areas and from range improvements.

2/ Erosion rates were calculated by the Musgrave Equation. Erosion classes based on erosion rates in tons/acre/year (T/Ac/Yr) are as follows: 0 to 0.94 is low; 0.94 to 2.8 is moderate; 2.8 to 6.6 is high; and more than 6.6 is very high.

APPENDIX 4

WATER RESOURCES

The assessment of impacts of land treatments on water resources in Chapter 4 was based on field observations and literature findings that are summarized below. Expected changes in watershed conditions are presented by water source and allotment in Table A4-1.

The relationship between brush control, sagebrush and hydrology has been studied by a number of researchers including Lusby (1979), Sturges (1978), and Shown, Miller and Branson (1969). Generally, the research indicates that under favorable conditions reductions in erosion and runoff can be obtained by converting sagebrush to grass. Sturges (1973) suggests that sagebrush spraying can reduce soil-moisture loss, which could be important to increasing yields of other types of vegetation. Sturges (1973) also indicates that the ecological effects of spraying, other than on herbaceous production, have often not been adequately considered.

Berry (1979) pointed out that mechanical brush removal may have limited effects on aquatic resources, but some practices may not be beneficial from the standpoint of runoff and sediment production. Daubenmire (1970) discussed six points concerning the effects of sagebrush elimination on ecological relationships. A summary follows:

1. There is little evidence to indicate that shrub eradication alone maintains grass increases shown shortly after treatment.

2. Dense clumps of shrubs provide the sole protection for any perennial grass plants remaining on many areas of depleted range. Artemisia elimination may allow complete destruction of perennial grasses by overgrazing.

3. Removal may adversely affect the soil productivity by reducing mineral cycling. This could allow some minerals to migrate permanently below the reach of grass roots in years when there is downward percolation below this depth and could also reduce the mineral store in the adjacent surface horizons.

4. Reduction in bird-nesting habitat could reduce the natural insect control provided by young bird rearing.

5. Spraying may damage or eliminate certain broadleaf forbs.

6. Sagebrush removal may adversely affect the accumulation of snow and the rate of snowmelt.

The loss of the deep root system, little basal cover change, and reduction in canopy cover are other concerns. Treatments would likely increase production of grass and forbs, but total vegetative biomass probably would not change considerably. Shumaker and Hanson (1977) showed that sprayed sites increased in herbage yield but did not substantially change in total yield. Examination of Shumaker and Hanson's cover data revealed that total cover did not change substantially with treatment and in some cases was less. Unpublished research by Jorgensen (1975) supported the hypothesis that canopy cover does not change considerably and may be reduced (where forbs are affected) in higher kill-rate situations.

TABLE A4-1

IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES
ON WATER RESOURCES BY WATER SOURCE AND ALLOTMENT

Allotment	Water Source	Miles in Allotment		Parameters	Expected Changes in Condition 1/				
		Total	Public		Proposed Action	No Change	No Grazing	Lower Stocking	Greater Production
Baird	Little Fish Creek	.25	.25	Soil Loss	0	0	++	0	--
	Little Fish Creek			Sediment Yield	0	0	0	0	0
	Reservoir	.25	.25	Bank Condition	0	0	+	0	-
				Upland Watershed	++	0	++	++	0
				Grazing Intensity	0	0	+	0	-
				Overall Condition	0	0	+	0	-
Big Beaver	Big Beaver Creek	2.00	1.25	Soil Loss	0	0	++	++	0
				Sediment Yield	0	0	0	0	0
				Bank Condition	+	0	+	+	0
				Upland Watershed	++	0	++	++	(T)-
				Grazing Intensity	+	0	+	+	0
				Overall Condition	+	0	+	+	0
Camp Creek	Camp Creek	7.00	5.00	Soil Loss	0	0	++	+	0
	Brush Creek	3.00	1.50	Sediment Yield	0	0	+	+	0
				Bank Condition	0	0	0	0	0
				Upland Watershed	+	0	++	++	(T)-
				Grazing Intensity	0	0	++	++	0
				Overall Condition	0	0	+	+	0
Cherry Creek	Cherry Creek	1.70	1.70	Soil Loss	0	0	+	0	-
				Sediment Yield	0	0	0	0	0
				Bank Condition	0	0	0	0	0
				Upland Watershed	0	0	++	++	(T)-
				Grazing Intensity	0	0	0	0	0
				Overall Condition	0	0	0	0	0
Colorado Gulch	Colorado Gulch	1.50	1.50	Soil Loss	0	0	+	0	-
				Sediment Yield	0	0	0	0	--
				Bank Condition	0	0	0	0	0
				Upland Watershed	0	0	++	0	(T)-
				Grazing Intensity	0	0	0	0	--
				Overall Condition	0	0	0	0	-
Cow Creek	Cow Creek	.75	.25	Soil Loss	0	0	+	0	-
				Sediment Yield	-	0	0	-	-
				Bank Condition	-	0	+	-	-
				Upland Watershed	++	0	++	++	(T)--
				Grazing Intensity	-	0	0	-	--
				Overall Condition	0	0	+	0	-
Croy Creek	Camp Creek	1.50	1.50	Soil Loss	0	0	++	0	0
	Poison Creek	.25	.25	Sediment Yield	0	0	+	+	0
	Croy Creek	5.00	.50	Bank Condition	0	0	+	0	0
				Upland Watershed	0	0	0	+	(T)--
				Grazing Intensity	0	0	++	+	0
				Overall Condition	0	0	+	+	0
Deer Creek (NC)	Big Deer Creek	3.00	1.00	Soil Loss	0	0	++	++	0
				Sediment Yield	0	0	++	++	0
				Bank Condition	+	0	+	+	0
				Upland Watershed	0	0	0	0	(T)--
				Grazing Intensity	0	0	++	++	0
				Overall Condition	0	0	+	+	0
Dry Creek	Line Creek	2.25	1.75	Soil Loss	+	0	++	+	0
				Sediment Yield	+	0	++	++	0
				Bank Condition	+	0	+	+	0
				Upland Watershed	+	0	+	++	(T)-
				Grazing Intensity	++	0	++	++	0
				Overall Condition	+	0	+	+	0
Ear Creek	South Fork			Soil Loss	0	0	++	++	0
	Lime Creek	1.25	1.25	Sediment Yield	0	0	++	++	--
	Ear Creek	.75	.75	Bank Condition	0	0	0	0	-
	West Fork			Upland Watershed	0	0	0	0	(T)--
	Corral Creek	1.50	1.50	Grazing Intensity	0	0	++	++	--
				Overall Condition	0	0	+	+	-
East Fork	Copper Creek	6.00	.25	Soil Loss	+	0	++	0	0
	Fish Creek	2.00	.00	Sediment Yield	+	0	++	0	-
	Fish Creek			Bank Condition	+	0	+	0	-
	Reservoir	.25	.25	Upland Watershed	+	0	++	++	(T)-
				Grazing Intensity	-	0	++	0	-
				Overall Condition	+	0	+	0	-
Elkhorn	Big Wood River	.00	.00	Soil Loss	0	0	++	0	-
	East Fork Big			Sediment Yield	0	0	0	0	-
	Wood River	.00	.00	Bank Condition	0	0	0	0	-
		(adjacent to allotment)		Upland Watershed	0	0	++	0	(T)-
				Grazing Intensity	0	0	0	0	-
				Overall Condition	0	0	0	0	-

TABLE A4-1 (cont.)

IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES
ON WATER RESOURCES BY WATER SOURCE AND ALLOTMENT

Allotment	Water Source	Miles in Allotment		Parameters	Expected Changes in Condition 1/				
		Total	Public		Proposed Action	No Change	No Grazing	Lower Stocking	Greater Production
Flat Top Sheep Co.	Cold Springs Creek	3.00	.50	Soil Loss	0	0	+	0	0
				Sediment Yield	-	0	+	0	—
	Timber Gulch	2.25	2.25	Bank Condition	0	0	+	0	-
	Friedman Creek	6.0	3.25	Upland Watershed	++	0	++	++	(T)0
	Trail Creek	2.50	.25	Grazing Intensity	-	0	++	0	--
				Overall Condition	0	0	+	0	-
Hailey Creek	Fisher Canyon Creek	.25	.25	Soil Loss	0	0	0	0	-
				Sediment Yield	-	0	0	0	--
	Porcupine Creek	.10	.10	Bank Condition	0	0	0	+	-
				Upland Watershed	0	0	++	+	(T)-
				Grazing Intensity	-	0	0	-	--
				Overall Condition	0	0	0	0	-
Indian Creek	Ohio Gulch	5.00	4.00	Soil Loss	0	0	++	0	-
	Big Wood River	.00	.00	Sediment Yield	0	0	++	0	0
	Indian Creek	.00	.00	Bank Condition	0	0	+	0	0
		(adjacent to allotment)		Upland Watershed	0	0	++	++	(T)-
				Grazing Intensity	0	0	++	0	-
				Overall Condition	0	0	+	0	-
Iron Mine	Left Fork Copper Creek	1.25	1.25	Soil Loss	0	0	++	0	-
				Sediment Yield	0	0	+	0	-
				Bank Condition	0	0	0	0	0
				Upland Watershed	0	0	++	+	(T)0
				Grazing Intensity	0	0	++	0	0
				Overall Condition	0	0	+	0	0
Lava Lake	Lava Creek	8.00	.20	Soil Loss	0	0	++	0	-
				Sediment Yield	0	0	++	0	0
				Bank Condition	0	0	+	0	-
				Upland Watershed	0	0	0	0	0
				Grazing Intensity	0	0	++	0	--
				Overall Condition	0	0	+	0	-
Little Beaver	Little Beaver Creek	4.00	2.00	Soil Loss	0	0	+	+	0
				Sediment Yield	0	0	0	0	0
	Big Beaver Creek	1.50	.75	Bank Condition	0	0	0	0	0
				Upland Watershed	0	0	++	0	(T)-
				Grazing Intensity	0	0	0	0	0
				Overall Condition	0	0	0	0	0
Little Rock Creek	Little Poison Creek	4.00	.30	Soil Loss	0	0	+	0	--
				Sediment Yield	0	0	++	0	—
				Bank Condition	0	0	+	0	-
				Upland Watershed	+	0	+	+	(T)-
				Grazing Intensity	0	0	++	0	--
				Overall Condition	0	0	+	0	-
Little Wood	Little Wood River	4.00	2.50	Soil Loss	0	0	++	+	0
				Sediment Yield	0	0	++	+	0
				Bank Condition	0	0	0	0	0
				Upland Watershed	0	0	+	0	0
				Grazing Intensity	0	0	++	++	0
				Overall Condition	0	0	+	+	0
Muldoon	Thompson Creek	4.00	.50	Soil Loss	0	0	++	0	0
	Argosy Creek	1.00	.70	Sediment Yield	0	0	+	0	0
	Muldoon Creek	1.00	.75	Bank Condition	0	0	+	0	0
				Upland Watershed	0	0	++	0	0
				Grazing Intensity	0	0	++	0	0
				Overall Condition	0	0	+	0	0
Muldoon Canyon	Seamans Creek	5.00 (on one side)	4.00	Soil Loss	0	0	++	0	0
				Sediment Yield	0	0	+	0	0
				Bank Condition	-	0	+	0	-
				Upland Watershed	+	0	+	+	(T)-
				Grazing Intensity	-	0	++	0	—
				Overall Condition	0	0	+	0	-
Poison Creek	Poison Creek	4.50	1.55	Soil Loss	0	0	+	0	0
	Little Poison Creek	2.00	.15	Sediment Yield	0	0	++	++	-
				Bank Condition	+	0	+	+	-
	Rock Creek	2.00	.25	Upland Watershed	0	0	0	0	(T)-
				Grazing Intensity	0	0	++	++	--
				Overall Condition	0	0	+	+	-
Quigley	Quigley Creek	3.00	.60	Soil Loss	0	0	++	0	-
				Sediment Yield	-	0	0	0	--
				Bank Condition	0	0	+	0	-
				Upland Watershed	0	0	++	0	(T)-
				Grazing Intensity	-	0	+	-	—
				Overall Condition	0	0	++	0	-

TABLE A4-1 (cont.)

IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES
ON WATER RESOURCES BY WATER SOURCE AND ALLOTMENT

Allotment	Water Source	Miles in Allotment		Parameters	Expected Changes in Condition 1/				
		Total	Public		Proposed Action	No Change	No Grazing	Lower Stocking	Greater Production
Sheep Creek	Sheep Creek	5.00	2.40	Soil Loss	0	0	+	0	0
				Sediment Yield	-	0	0	0	--
				Bank Condition	-	0	+	-	-
				Upland Watershed	0	0	+	+	0
				Grazing Intensity	--	0	+	0	--
				Overall Condition	-	0	+	0	-
Soldier	Ear Creek	.75	.00	Soil Loss	0	0	0	0	0
	Rough Creek	3.00	1.45	Sediment Yield	-	0	0	0	--
				Bank Condition	0	0	0	0	0
				Upland Watershed	0	0	0	0	(T)--
				Grazing Intensity	0	0	0	0	0
				Overall Condition	0	0	0	0	0
South East Fork	East Fork Big Wood River	1.00	1.00	Soil Loss	0	0	++	0	0
				Sediment Yield	-	0	0	-	--
				Bank Condition	0	0	+	0	-
				Upland Watershed	+	0	+	+	(T)--
				Grazing Intensity	0	0	+	0	--
				Overall Condition	0	0	+	0	-
Spring Creek	Spring Creek	3.00	.50	Soil Loss	0	0	+	0	-
				Sediment Yield	0	0	0	0	0
				Bank Condition	0	0	+	0	0
				Upland Watershed	0	0	+	0	0
				Grazing Intensity	0	0	+	0	0
				Overall Condition	0	0	+	0	0
Stocking	Copper Creek	5.00	.25	Soil Loss	0	0	+	0	-
				Sediment Yield	0	0	0	0	--
				Bank Condition	+	0	+	+	-
				Upland Watershed	+	0	+	+	+
				Grazing Intensity	0	0	+	0	--
				Overall Condition	0	0	+	0	-
Upper Fish Creek	Fish Creek	.50	.50	Soil Loss	0	0	+	0	--
	Long Canyon Creek	1.00	.25	Sediment Yield	-	0	0	-	--
				Bank Condition	0	0	0	0	-
				Upland Watershed	0	0	++	0	0
				Grazing Intensity	-	0	0	-	--
				Overall Condition	0	0	0	0	-
West Bellevue	Big Wood River	.00 (adjacent to allotment)	.00	Soil Loss	0	0	++	0	0
				Sediment Yield	0	0	+	0	-
				Bank Condition	0	0	+	0	-
				Upland Watershed	0	0	0	0	(T)--
				Grazing Intensity	0	0	++	0	-
				Overall Condition	0	0	+	0	-

1/ The parameters tabulated and the methods for measuring them are described below:
Soil Loss - Determined from erosion rates given in Table A3-3. 0 indicates less than a 10 percent change from present erosion; +, ++ indicate a 10-20 percent reduction and above 20 percent reduction in erosion rates, respectively; -,-- indicate a 10-20 percent increase and above 20 percent increase in erosion rates, respectively. Sediment Yield - Estimates of sediment yield were made using the Pacific Southwest Interagency Committee Method (1968). Method was applied to soil associations by allotment. No measured sediment yield data are available; estimates should not be considered as absolute values. 0 indicates less than 10 percent change from present sediment yield; -,+ indicates a 10 percent increase or decrease in sediment yield, respectively. Bank Condition - Bank condition was evaluated using ocular-estimate data published by Reininger (1978). Values of bank stability and vegetative bank condition were combined into a general description of bank condition. Changes in bank condition were evaluated based on proposed changes in livestock numbers and turnout dates. Estimates assumed that increases in livestock numbers would increase physical bank damage due to trampling and vegetation removal. A + indicates improvement; - indicates decline. Upland Watershed - Upland watershed was evaluated on expected changes in ecological condition. 0 indicates no change in condition; +,- indicates a majority of land increased or decreased one condition class; ++ indicates a majority of land increased to a good or excellent rating with at least 30 percent of the area in a good ecological condition; -- indicates a significant reduction in ecological condition class, i.e. from a good to a low-fair or poor. (T) indicates that the rating is due primarily to a proposed treatment which could have extreme adverse impacts (see text). Grazing Intensity - available forage data were compared with AUM forage allocation and adjusted for type of livestock. The percent change from present stocking rates (forage allocation) were rated as follows: 0-20 percent change equals 0; 20-39 percent increase, decrease equals -,+, respectively; above 40 percent increase, decrease equals --, ++, respectively. The primary use of the information was in the assessment of increased livestock numbers and increases in available forage consumption. It should be noted that the forage allocation process would not allocate more than 50 percent of any forage species, and non-forage species would not be allocated. Overall Condition - assessed by examining all of the above parameters. Allotments having three negative or positive changes received an overall negative or positive condition, respectively.

APPENDIX 5

VEGETATION

VEGETATION INVENTORY METHODS

The SVPA vegetation inventory was conducted from July 1977 through September 1979 and consisted of field and data analysis components. The primary purpose of the inventory was to derive production and current range condition data to be used in future range resource management decisions. Field forms and BLM Instruction Memoranda referred to are available for inspection at the Shoshone District Office along with a comprehensive description of inventory and analytic methods.

Field Inventory

The methods used in the field inventory are described in detail in the National Range Handbook (SCS 1976). Sampling strata were defined in terms of soils, soil-vegetation correlations, physiographic features, and climatic characteristics. The soil base for ecological stratification was a range-oriented (third-order) soil survey conducted in 1978 and 1979. This survey meets the requirements of the National Cooperative Soil Survey. The primary ecological sites stratified are summarized by major ecological component in Table A5-1.

During the latter part of the 1977 field season (July - September 1977), data on species composition, production, phenology, topography, etc., were gathered at selected sites in the higher elevations of the SVPA. Data were recorded on Soil Conservation Service (SCS) Range Data Form No. 417 with plant identification following Hitchcock and Cronquist (1973) and plant species abbreviations following The Idaho Plant List (SCS 1976).

A third-order soil survey of the SVPA was conducted by the Gooding Field Office, SCS, beginning in 1978. In addition to the regular survey, the soil taxonomy of approximately 10 percent of the production plot locations was described by a BLM soil scientist to establish soil-site correlations. These were verified prior to data compilation.

A determination of erosion condition class was made at each production plot location in 1978 using BLM form 7310-12 (modified). Numerical values

were assigned to the soil surface factors, including soil movement, surface litter, surface rock, flow patterns and rills, using procedures described in BLM Manual 7317.12. An erosion condition class of stable, slight, moderate, critical or severe was then assigned to each site on the basis of its total numerical rating.

Apparent trend information was collected at each clipping site using BLM form ISO 4400-3. Observations were made on the percent of the total vegetation composed of the potential natural vegetation, plant vigor, seedling establishment, surface litter, and soil movement. Each of these factors was given a numerical rating; trend was categorized as downward, static, or upward at each site depending upon the total numerical score. Additional trend data were gathered from established trend plots.

The primary effort for the 1979 field season was the determination of range condition for the SVPA. Range condition was determined by comparing existing plant communities with the presumed climax plant community for a specific ecological site, regardless of the value of individual plants or the plant community for specific uses (SCS 1976).

BLM Form ISO-4400-1 was used to record information on plant species composition, phenology, production, and current erosion using ocular reconnaissance techniques. The data on these forms did not serve as the primary production data base, but rather as the means to extrapolate production data and to map vegetation types and condition.

Data Analysis

The goal of the data analysis was to provide current range condition and production information which could be readily used in making management decisions.

The methods used in the data analysis process are outlined in Instruction Memorandum No. ID-78-85 (3/7/78). Several steps were involved in this procedure: 1) correlation of soils data with potential natural plant communities to delineate ecological sites within the inventory area; 2) calculation of current total air-dry plant production (pounds/acre), the degree of grazing use the plant or plant community can withstand and continue to maintain its vigor, and range suitability criteria.

The initial step in the data analysis was the determination of the current productive capabilities within each primary ecological site for each observed condition class, i.e. good, fair, poor (SCS 1976). The details of this process are explained by Burton and Miles (1978). Basically, it involves aggregating the clipping plot data into ecological sites (potential vegetation types) and then stratifying into current vegetation types by condition class.

Mean annual production was calculated for each vegetation class (i.e., grass, forbs, shrubs) and for the total production. Appropriate standard errors and confidence intervals were calculated using the "Student T Statistic" with alpha equal to .20.

Following calculation of per-acre production data for each ecological site by condition class, the percentage of each ecological site by condition class within each soil mapping unit was calculated. After the acres of each mapping unit were determined on a pasture basis, final forage production was calculated using Automated Data Processing.

TABLE A5-1

MAJOR ECOLOGICAL COMMUNITIES AND
CORRESPONDING ECOLOGICAL SITES
(Public, State, and Private Lands)

Ecological Community	Acres 1/	Percent of Area 1/	Corresponding Ecological Site(s) 2/		Common Species in Climax Communities
Mountain Big Sagebrush	300,284	66.6	Gravelly	12-16"	mountain big sage, bluebunch wheatgrass, Idaho fescue, prairie junegrass, lupine
			Loamy	12-16"	mountain big sage, Idaho fescue, bluebunch wheatgrass, lupine, tapertip hawksbeard
			South Slope	12-16"	mountain big sage, bitterbrush, bluebunch wheatgrass, balsamroot
			South Slope	16-20"	mountain big sage, Idaho fescue, bluebunch whestgrass, lupine, Hood's phlox
			North Slope	16-20"	mountain big sage, Idaho fescue, bluebunch wheatgrass, balsamroot, tapertip hawksbeard
			Subalpine	16-24"	mountain big sage, Wyeth buckwheat, bluebunch wheatgrass, sandwort, lupine
Low, Alkali Sagebrush	42,117	9.3	Clay Pan	12-16"	alkali sage, Idaho fescue, Nevada bluegrass, Hood's phlox
			Stony Clay	12-16"	alkali sage, buckwheat, Idaho fescue, bluebunch wheatgrass, Hood's phlox
			Clayey South Slope	12-16"	low sage, bluebunch wheatgrass, Nevada bluegrass, biscuitroot, balsamroot
			Clayey North Slope	16-20"	low sage, sulphur buckwheat, Idaho fescue, sedges, balsamroot, lupine
			Shallow North Slope	16-20"	low sage, Idaho fescue, Nevada bluegrass, Hood's phlox, buckwheat
Non-productive	41,982	9.3	Talus, rock outcrop		virtually no vegetation
Mountain Brush	33,871	7.5	Steep Slope	16-20"	mountain big sage, mountain snowberry, chokecherry, bluebunch wheatgrass, lupine
			North Slope	20-24"	mountain big sage, mountain snowberry, bluebunch wheatgrass, Idaho fescue, lupine, cinquefoil, geranium
			Loamy	20+"	mountain big sage, mountain snowberry, bluebunch wheatgrass, slender wheatgrass, buckwheat
Douglas-fir	15,434	3.4	Douglas-fir	20+"	Douglas-fir, subalpine fir, sedge, snowberry, ninebark, pinegrass
Quaking Aspen	5,086	1.1	Aspen	16+"	quaking aspen, snowberry, mountain brome, Kentucky bluegrass, sedges, yarrow
Seedings	3,849	0.9	Loamy	12-16"	various, commonly seeded species, intermediate wheatgrass, crested wheatgrass
Meadow-Riparian	3,546	0.9	Semi-wet Meadow		shrubby cinquefoil, hairgrass, slender wheatgrass, sedges, clovers, yarrow
			Wet Meadow		sedge, hairgrass, common camas, rushes, willow, iris
Lava	3,319	0.7	Mixed Shrub Complex		mountain big sage, bitterbrush, lava fernbush, Nevada bluegrass
Basin Big Sagebrush	711	0.2	Loamy	12-16"	basin big sage, basin wildrye, bluebunch wheatgrass, Nevada bluegrass, balsamroot
			Clayey	12-16"	three-tip sage, bluebunch whestgrass, Idaho fescue, Thurber needlegrass, stipate milkvetch
			South Slope	12-16"	basin big sage, bitterbrush, bluebunch wheatgrass, balsamroot, tapertip hawksbeard
Cultivated/Disturbed	596	0.1	Variable		chestgrass, annual weeds
TOTAL	450,795	100.0			

1/ Acres and percent of area shown may not correlate directly with Map 3-3. Areas of ecological sites too small to be shown accurately were combined with other ecological sites on that map.

2/ Ecological site descriptions are available at the Shoshone District Office. Some of the ecological sites listed represent combinations that have similar species composition but different amounts and/or proportions of species.

TABLE A5-2

PRESENT RANGE CONDITION, TREND, AND SUITABILITY
(PUBLIC LAND ACRES)

Allotment	Public Land Acreage	Condition (Acres)			Treated (Acres)	Trend (Acres)			Suitability (Acres)	
		Good	Fair	Poor		Upward	Stable	Downward	Unsuitable (C)	Unsuitable (S)
Baird	620	219	396	5	0	0	620	0	0	0
Baptie	799	185	239	375	0	0	799	0	10	0
Barton	880	0	167	713	0	0	880	0	27	0
Base Line	863	463	400	0	0	0	863	0	23	0
Bennett	200	90	110	0	0	0	200	0	0	0
Big Beaver	1907	200	1206	501	0	0	0	1907	62	0
Brock Creek	160	0	0	104	56	0	160	0	0	0
Bullion Gulch	1454	0	1288	166	0	0	1454	0	518	132
Camp Creek	2940	153	2362	425	0	0	2940	0	104	15
Cherry Creek	1089	164	925	0	0	0	1089	0	78	0
Colorado Gulch	821	0	357	464	0	0	821	0	502	25
Cottonwood	3651	154	3497	0	0	0	3651	0	222	222
Courier	575	0	575	0	0	0	575	0	0	0
Cove	6967	15	4057	2895	0	0	6967	0	3183	814
Cow Creek	1105	631	474	0	0	1105	0	0	19	0
Crater	3522	67	3455	0	0	0	3522	0	1834	179
Croy Creek	8478	1660	5592	1226	0	0	8478	0	1226	224
Deer Creek (SV)	3579	93	3486	0	0	0	3579	0	143	102
Deer Creek (NC)	3130	2187	798	145	0	0	3130	0	162	0
Ory Creek	12805	1724	6150	4778	153	0	8675	4130	576	0
Ear Creek	3632	3261	371	0	0	0	3632	0	946	265
East Fork	5288	544	2732	2012	0	0	3702	1586	1446	577
Elk Creek	1130	551	547	32	0	0	1130	0	384	67
Elk Mountain	1013	0	1013	0	0	0	1013	0	60	0
Elkhorn	2821	310	2283	228	0	0	2821	0	1566	0
Fairfield	640	10	630	0	0	0	640	0	44	0
Flat Top Sheep Co.	28099	5143	19561	3248	147	0	28099	0	518	119
Fork	80	0	4	76	0	0	80	0	0	0
H & S	527	90	300	137	0	0	527	0	109	0
Hailey Creek	2645	121	2524	0	0	0	2645	0	0	0
Hatty Creek	220	67	119	34	0	0	220	0	0	0
Homestead	102	65	13	24	0	0	102	0	0	0
Hot Springs	952	116	836	0	0	0	952	0	322	0
Hyndman	360	0	360	0	0	0	360	0	0	0
Indian Creek	9084	882	7033	1169	0	0	9084	0	6005	864
Iron Mine	7220	278	6782	160	0	0	7220	0	786	21
Kent Canyon	2639	194	1563	882	0	0	2639	0	62	0
Lake Creek	1504	345	1153	6	0	0	1504	0	0	0

TABLE A5-2 (cont.)

PRESENT RANGE CONDITION, TREND, AND SUITABILITY
(PUBLIC LAND ACRES)

Allotment	Public Land Acreage	Condition (Acres)			Treated (Acres)	Trend (Acres)			Suitability (Acres)	
		Good	Fair	Poor		Upward	Stable	Downward	Unsuitable (C)	Unsuitable (S)
Lava Lake	10298	1281	8204	601	212	10298	0	0	1815	1039
Little	507	11	293	203	0	0	507	0	11	0
Little Beaver	4646	1038	3608	0	0	0	4646	0	252	63
Little Fish Creek	1154	0	860	294	0	186	968	0	0	0
Little Rock Creek	643	0	409	234	0	0	643	0	0	0
Little Wood	3201	0	2618	583	0	0	3201	0	1377	1243
Lower Rock Creek	3978	766	1632	1192	388	0	3978	0	253	0
Martin Canyon	4336	97	2667	1572	0	0	4336	0	1712	781
McAtee	12	0	0	0	12	0	12	0	0	0
McFarland	605	0	505	100	0	0	605	0	6	0
McHan Creek	240	0	227	13	0	240	0	0	0	0
Mill Canyon	529	127	320	82	0	0	529	0	75	47
Mountain View	320	0	320	0	0	0	320	0	94	69
Muldoon	5412	1085	4208	119	0	412	5000	0	383	65
Muldoon Canyon	6732	387	5195	1150	0	0	6732	0	4527	1229
North 40	142	0	67	75	0	0	142	0	0	0
Phillips Creek	162	49	113	0	0	0	162	0	34	5
Piney	484	132	298	54	0	0	484	0	135	0
Poison Creek	5335	14	2256	3065	0	0	5335	0	89	0
Poverty Flat	120	55	65	0	0	0	120	0	120	0
Powell Creek	200	15	185	0	0	0	200	0	0	0
Queens Crown	3548	0	1881	1667	0	0	3548	0	134	0
Quigley	5972	1267	4521	184	0	0	5972	0	4592	395
Red Elephant	1660	922	714	24	0	0	1660	0	1015	450
Road Canyon	4603	224	1198	3181	0	0	4603	0	437	56
Roanhide	1108	1108	0	0	0	0	1108	0	39	14
Rocky Bar	647	0	647	0	0	0	647	0	0	0
Rota Run	683	55	566	62	0	0	683	0	0	0
Rough Creek	1901	1783	118	0	0	1901	0	0	94	0
Scattered Tracts	325	68	65	192	0	0	325	0	0	0
Severe	200	42	155	3	0	0	200	0	0	0
Shale	607	0	199	408	0	0	607	0	0	0
Sheep Creek	4277	0	4163	114	0	0	4277	0	897	897
Sheep Point	834	9	825	0	0	0	834	0	69	0
Sheep Trail	1120	815	305	0	0	1120	0	0	0	0
Shirley	107	0	0	107	0	0	107	0	77	0
Silver Creek	2834	0	0	2834	0	0	1414	1420	108	0

TABLE A5-2 (cont.)

PRESENT RANGE CONDITION, TREND, AND SUITABILITY
(PUBLIC LAND ACRES)

Allotment	Public Land Acreage	Condition (Acres)			Treated (Acres)	Trend (Acres)			Suitability (Acres)	
		Good	Fair	Poor		Upward	Stable	Downward	Unsuitable (C)	Unsuitable (S)
Simpson	110	0	110	0	0	0	110	0	99	0
Slaughterhouse	3378	0	3263	115	0	0	3378	0	2343	201
Soldier	1008	1008	0	0	0	1008	0	0	90	0
South East Fork	1889	1050	839	0	0	0	1889	0	1489	176
South 120	120	22	94	4	0	0	120	0	0	0
Spring Creek	1567	63	1217	287	0	0	1567	0	196	0
Square Mountain	272	0	151	98	23	0	272	0	0	0
Stocking	2068	66	1590	412	0	0	868	1200	199	0
Telfer	157	0	79	78	0	0	157	0	0	0
Three Mile	80	4	76	0	0	80	0	0	0	0
Timber Butte	5675	559	2850	2266	0	0	5675	0	704	605
Timber Gulch	2816	819	1895	102	0	0	2816	0	736	235
Trail Creek	2332	152	2093	87	0	0	2332	0	49	0
Upper Fish Creek	1678	0	1678	0	0	0	1678	0	317	0
Upper Rock Creek	3814	555	2745	514	0	0	3814	0	1213	192
Upper Slaughterhouse	957	0	957	0	0	0	957	0	610	0
Water Gulch	731	0	511	220	0	0	731	0	417	47
West Bellevue	5510	0	5016	494	0	0	5510	0	174	114
West Fork Fish Creek	1259	376	788	95	0	0	1259	0	0	0
Willow Creek	517	19	368	130	0	0	517	0	168	26
Wolftone	332	332	0	0	0	0	332	0	0	0
Woodbury	780	26	382	372	0	0	780	0	19	0
Total	240,033	36383	159467	43192	991	16,350	213,440	10,243	48,125	11,575

TABLE A5-3

ECOLOGICAL SITES, VEGETATION TYPES, AND RELATED EFFECTIVE GROUND COVER BY CONDITION CLASS 1/

Ecological Site	Vegetation Type 2/	Ground Cover (percent) by Condition Class		
		Poor	Fair	Good
Loamy 12-16"	ARTRV	56	58	71
South Slope 12-16"	ARTRV	54	55	71
Gravelly 12-16"	ARTRV	51	54	65
Clayey 12-16"	ARTR4	56	58	61
Clay Pan 12-16"	ARLO	44	48	53
Shallow Stony Clay 12-16"	ARLO	55	57	63
Clayey South Slope 12-16"	ARAR8	53	60	64
North Slope 16-20"	ARTRV	74	76	87
South Slope 16-20"	ARTRV	71	73	86
Steep Slope 16-20"	ARTRV	67	69	74
Clayey North Slope 16-20"	ARAR8	53	63	72
Shallow North Slope 16-20"	ARAR8	65	72	77
Subalpine 16-24"	ARTRV'S'	77	84	89
Mixed Shrub Complex	ARTRV	74	83	88
Aspen 16+" 3/	POTR	65	75	90
North Slope 20-24"	ARTRV	76	82	87
Loamy 20+"	Variable	74	81	85
Douglas-fir 20+" 3/	PSME	70	80	90
Semi-wet Meadow	Misc.	75	80	85
Wet Meadow	Misc.	75	85	90

1/ Effective ground cover includes surface protection from rocks, live vegetation, and litter, expressed as a percent. The data were derived from estimates made at each clipping site as well as step-point transects, Carey Kipuka data, and previously developed site descriptions.
2/ See Table A5-1 for further description of vegetation.
3/ Includes overstory plus understory effective ground cover.

THREATENED AND ENDANGERED PLANTS IN THE SUN VALLEY PLANNING AREA

Betty Eidemiller, Department of Ecology and Evolutionary Biology, University of California, Irvine, was contracted to compile information on the distribution and status of plant species within the Sun Valley Planning Area which may be considered endangered, threatened, or rare. The following summary is taken directly from her report of September 1977.

Little can be said about many of the species which may be rare, threatened, or endangered in the Sun Valley Area based on this year's field work. For each plant examined, many possibilities exist. Excluding Artemisia papposa and Eriogonum thymoides, which remained visible, it is possible that specimens were overlooked either because of their inconspicuousness or due to the fact that not every square inch of habitat could be covered. It is also possible that few individuals of some species may ever be found there, or that they are present in greater numbers under a more "normal" climatic regime. Others of these species will probably not be found in the area. One may only prove that a species is there; to show that it once was there is more difficult. There is no way to prove that a plant is definitely not there.

As far as land management practices are concerned, these plants appear to break into two groups. The first includes plants such as Draba sphaerocarpa, which grow on rocky ledges in subalpine situations, a place where methods such as plowing would not impinge. These habitats are protected by virtue of reduced accessibility and "utility". The second includes plants such as Artemisia papposa, which may not grow in exactly prime agricultural sites but still might be subjected to grazing, trampling, spraying, plowing, or whatever. It is widely agreed that preservation of habitat is "the conservation measure of choice (Smith, 1975)"; however, preservation may require a variety of things, from maintenance of a community in an unpopulated pristine state, to active manipulation, such as frequent burning to prevent replacement of a rare plant by a climax set of species, depending on the "needs" of that plant.

> The biology of each species should be investigated. Many plants will require little or no direct management action, except to prevent their outright destruction by man. Many species can even be grazed, burned, or subjected to other stresses with little or no permanent damage. (Reveal, 1977)

The key is to knowing enough about each particular species so as to be able to make rational decisions about what is best for both that plant and for mankind as well. We are not capable of judging that for many of these species at this time.

In overview, then, several endangered and threatened plants are known to be in, or very near, this area. These include Antennaria arcuata, which should be closely guarded; Primula cusickiana, which requires taxonomic as well as field study; and Artemisia papposa, which is probably in no danger unless drastic habitat alterations are made. There are plants here which probably do not need special protection, including Eriogonum thymoides, and Chaenactis evermannii. There are plants known to be here that little is known about, including Haplopappus insecticrurus, Astragalus mulfodiae, and A. oniciformis, which deserve immediate attention. There are others that may be here, but may not be, including the Drabas, Phacelia idahoensis, and Castilleja longispica. The drought and grazing had a huge impact on the vegetation of this area in 1977.

In summation, more field work under more normal conditions would be required to more accurately assess the status of uncommon plant populations in the Sun Valley Environmental Study Area. Until then, careful analysis should be done on a site-to-site basis if increases in grazing, or any seeding, plowing, spraying, or any other manipulative activities are planned. Hopefully many questions about these species will be answered during the next field season.

TABLE A5-4

POSSIBLE ENDANGERED AND THREATENED PLANTS
SUN VALLEY PLANNING AREA 1/

FAMILY Species	Federal Status 2/	State List	Proposed Status	Presence in ES Area 3/
APIACEAE				
Lomatium idahoensis	-	X	?	2
ASTERACEAE				
Antennaria arcuata 4/	E		E	1
Artemisia papposa	T		T	3
Chaenactis evermannii	T		-	3
Erigeron asperuginus	-	X	?	2
Haplopappus aberrans	T		T	1
Haplopappus insecticruris 4/	-	X	E	3
BRASSICACEAE				
Draba argyraea	T		-	1
Draba oreibata	-	X	?	1
Draba sphaerocarpa	T		-	1
CARYOPHYLLACEAE				
Silene scaposa var. lobata	T		T	2
FABACEAE				
Astragalus adanus	-	X	-	3
Astragalus atratus var. inseptus 4/	E		T	2
Astragalus mulfordiae 4/	T		E	3
Astragalus oniciformis 4/	-	X	E	3
Astragalus purshii var. ophiogenes 4/	E		E	1
HYDROPHYLLACEAE				
Phacelia idahoensis	-	X	?	2
Phacelia minutissima	-	X	?	2
ONAGRACEAE				
Epilobium obcordatum	-	X	?	2
POLYGONACEAE				
Eriogonum chrysops 4/	E		?	2
Eriogonum thymoides	T		-	3
PRIMULACEAE				
Primula cusickiana	E		E	3
SCROPHULARIACEAE				
Castilleja longispica	-	X	?	2

1/ Adapted from report by Eidemiller (1977).
2/ Status: E = Endangered; T = Threatened.
3/ Presence: 1 = Present; 2 = Likely present; 3 = Possibly present.
4/ Candidate species for Threatened or Endangered status as listed in Federal Register, December 15, 1980, Vol. 45, No. 242. All other species have been dropped from Candidate status by U.S. Fish and Wildlife Service.

The primary factors used to assess environmental impacts to vegetation were stocking rates, seasons of use, grazing systems, and range improvements. There is very little research on the combined effects of grazing management (e.g., turnout dates, various grazing systems, etc.) and range improvements on ecological condition and production. As a result, precise quantification of impacts to vegetation is not possible. Estimation of vegetation impacts resulting from various management proposals becomes an artful application of professional judgment, guided by appropriate literature and experience. These criteria were applied consistently in all allotments and made a comparative analysis possible.

Ecological Condition Prediction

Specific assumptions to predict changes in ecological condition were developed using appropriate literature and knowledge of existing conditions and trends. These assumptions resulted in an estimate of the 20-year ecological condition response from the grazing management and are described below by alternative.

If land treatments were not proposed in a specific alternative, the prediction of resultant ecological condition from grazing management was considered complete. When land treatments were proposed in an alternative, it was necessary to adjust the predicted 20-year ecological condition response to reflect native range areas that would be treated (see example one below).

Example one (East Fork Allotment)

	Ecological Condition Percent of Total Acres			
	Good	Fair	Poor	Treated
Current	10	52	38	0
Projected Change from Grazing Management	26	40	34	0
Projected Treatment Areas	0	-2	-19	+21
Net Condition Response	26	38	15	21

The net condition result is an estimate of the combined effect of all described management (grazing, project development, and land treatments) on ecological condition. Projected acreages in each condition class, by allotment, have been listed for the proposed action and each alternative (Table A5-5).

Proposed Action

Condition and trend on 38 allotments totaling 78,247 acres would not change. These allotments are proposed for seasonal grazing and condition and trend would not improve enough to change the present condition class.

Areas currently exhibiting upward trends (16,395 acres) would continue to improve in varying degrees depending on the grazing system. If they are presently in poor condition, the percentages expected to improve to fair condition would be: 20 percent under a deferred grazing system, 30 percent under deferred rotation, and 40 percent under rest rotation. On areas in fair condition, the improvement from fair to good for these grazing systems would be 50 percent, 70 percent, and 80 percent, respectively. Areas currently in good condition would improve but remain in good condition. No significant change in condition would be realized under seasonal grazing except in those allotments proposed for land treatments. Plant reproductive vigor on areas exhibiting upward trend is currently at favorable levels. Condition response in these areas would be expected to occur more quickly because there would not be a period required for vigor improvement.

Areas currently exhibiting static trends (213,440 acres) would also be expected to improve, to a lesser degree. For those areas in poor condition, the percentages expected to improve to fair condition would be: 10 percent under deferred grazing, 20 percent under deferred rotation, and 30 percent under rest rotation. On areas in fair condition, the improvement from fair to good for these grazing systems would be 30 percent, 40 percent, and 50 percent, respectively. No change in condition would be realized under seasonal grazing except in those allotments proposed for land treatments. Plants in areas of static trend do not have sufficient vigor to maintain adequate seed production. However, reproductive vigor recovery would occur in the short term (Mueggler 1975). Allotments in high, good and fair condition would achieve quicker and greater improvement than those in poor condition.

Areas currently exhibiting downward trends (10,243 acres) would exhibit static to upward trends but would not improve enough to change the present condition class. The areas currently exhibiting downward trends tend to be along the bottoms and in areas where livestock congregate. Plants in these areas exhibit low vigor. The proposed grazing management would improve plant vigor but condition class would not change. Allotments

under seasonal grazing would exhibit no significant change in condition except in those allotments proposed for land treatments.

No Change Alternative

The same criteria as described in the proposed action were used to evaluate projected future condition.

No Grazing Alternative

Between 75 and 100 percent of the areas presently exhibiting upward trends (16,395 acres) would be expected to improve in condition class. Plant reproductive vigor on these areas is currently at favorable levels. Condition improvement would, therefore, be expected to occur more rapidly because there would be no time period required for vigor improvement.

Areas currently exhibiting static trends (213,440 acres) would initiate upward tends. Approximately 40 percent of the areas in fair condition would be expected to move to good condition, and 20 percent of the areas in poor condition would be expected to move to fair condition. Plants in these areas do not have sufficient vigor to maintain adequate seed production; however, reproductive vigor would be regained in the short term (Mueggler 1975). Areas in fair condition would be expected to respond more quickly than areas in poor condition, where desirable plant species are less numerous.

Areas currently exhibiting downward trends (10,243 acres) would respond as under static trend; however, response time would be much longer. Response time in areas currently in poor condition may be longer than the 20-year planning period, depending on the availability of desirable plants and seed source.

Lower Stocking Alternative

Approximately 75 percent of the areas presently exhibiting upward trends (16,395 acres) would be expected to improve in condition class. Plant reproduction and vigor on these areas is currently at favorable levels. Condition improvement response would, therefore, be expected to occur more rapidly because there would be no time period required for vigor improvement.

Areas currently exhibiting static trends (213,440 acres) would initiate upward trends. On areas in fair condition, 40 percent, 50 percent, and 60 percent would be expected to move to good condition under deferred grazing, deferred rotation, and rest rotation grazing, respectively. On areas in poor condition, 20 percent, 30 percent, and 40 percent would be expected to move to fair condition under these grazing systems. On allotments with seasonal grazing, 20 percent would be expected to move from fair to good. Plants in these areas do not have sufficient vigor to maintain adequate seed production; however, reproductive vigor would be regained in the short term (Mueggler 1975). Areas in fair condition would be expected to respond more quickly than areas in poor condition, where desirable plant species are less numerous.

Areas currently exhibiting downward trends (10,243 acres) would exhibit static and upward trends. On areas in fair condition, 20 percent, 30 percent, and 40 percent would be expected to move to good condition under deferred grazing, deferred rotation, and rest rotation, respectively. On areas currently in very poor condition, response time to move to fair condition might take longer than the 20-year planning period. The availability of desirable plants and seed source would be the controlling factors.

Greater Production Alternative

The same criteria as described in the proposed action were used to evaluate future condition.

Vegetation Production Prediction

Present production was determined as outlined in the first section of this appendix. Projected changes in usable vegetation production in 20 years were determined through both a qualitative and quantitative analysis of stocking rates, seasons of use, and grazing systems. A quantitative analysis was used to determine increased usable production due to proposed land treatments. All allotments were evaluated using the same criteria.

Stocking Rates

To determine the impacts to production, the percent change from the past (1975-1979) average use to the proposed stocking rate for each

allotment was first calculated. An impact index was then used to determine the expected percent change in vegetation production. The impact index and resultant expected percent change in production is presented below.

Impact Index	Stocking Decreased		Stocking Increased	
	Percent	Production Increase	Percent	Production Decrease
Highly Significant (HS)	91+	16	91+	32-40
Significant (S)	61-90	12	61-90	24-30
Moderate (M)	31-60	8	31-60	16-20
Low (L)	1-30	2-4	1-30	4-10
No Change (NC)	0	0	0	0

For example, under the proposed action the Barton Allotment would take a 44 percent (moderate on the Impact Index) downward adjustment to the inventoried grazing capacity. A moderate decrease in stocking level would be expected to cause an 8 percent increase in usable forage.

Seasons of Use

The Impact Index and expected percent change used for evaluating Seasons of Use is presented below.

Impact Index	Description	Expected Percent Increase in Usable Forage
Significant (S)	1 to 1 1/2 months delayed use in spring and removed 1 to 1 1/2 months earlier in the fall.	10-15 percent
Moderate (M)	1/2 to 1 month delayed use in spring and removed 1 month earlier in the fall.	5-10 percent
Low (L)	1/2 month delayed use in spring or 1 month earlier removal in the fall.	1-5 percent
NC	No change.	0

Grazing Systems

Gibbens and Fisse (1975) found that an increase in grazing capacity of 6 percent could be expected through implementation of grazing systems that provide relief from continued grazing. The impact index and expected percent changes in usable production resulting from grazing system implementation is presented below.

Impact Index	Changes from Seasonal Grazing to:	Expected Percent Increase In Usable Forage
	Rest Rotation - 4 treatment	12
S	Rest Rotation - 3 treatment	11
	Rest Rotation - 2 treatment	10
	Deferred Rotation - 4 treatment	9
M	Deferred Rotation - 3 treatment	8
	Deferred Rotation - 2 treatment	7
	Deferred Use - 3 treatment	6
L	Deferred Use - 2 treatment	5
	Deferred Use	4
NC	Seasonal	0

Range Improvements (Land Treatments)

Mueggler and Blaisdell (1958) concluded that on the Snake River Plains grass production would increase 75 percent through chemical control of sagebrush.

In this analysis a 60 percent increase in usable forage would be expected from brush control. A 75 percent increase in usable forage would be expected from brush control and seeding (see example two below).

Example Two (East Fork Allotment)

Total Usable Production (lbs./acre	Total Usable Grasses and Forbs (lbs./acre	Total Public Land (acres)	Usable Grasses and Forbs (lbs./acre
1,391,549	965,550	3,632	266

In the proposed action 300 acres are proposed for brush control, and 800 acres are proposed for brush control and seeding.

Therefore, 266 lbs/acre usable grass and forbs x .60 = 160 lbs/acre
160 lbs/acre x 300 acres of brush control = 48,000 lbs

266 lbs/acre usable grass and forbs x .75 = 200 lbs/acre
200 lbs/acre x 800 acres of brush control and seeding = 160,000 lbs
48,000 lbs + 160,000 lbs = 208,000 lbs

$\frac{208,000 \text{ lbs}}{1,391,549 \text{ lbs}} = .149 =$ 14.9 percent increase in usable forage as a result of land treatments.

The combined impacts to usable production from stocking rates, seasons of use, grazing systems, and range improvements are presented by allotment in Table A5-6.

TABLE A5-5

PROJECTED 20-YEAR CONDITION CHANGE
UNDER THE PROPOSED ACTION AND ALTERNATIVES
(PUBLIC LAND ACRES)

Allotment	Proposed Action				No Change				No Grazing				Lower Stocking				Greater Production				Total Acres
	Good	Fair	Poor	Treat	Good	Fair	Poor	Treat	Good	Fair	Poor	Treat	Good	Fair	Poor	Treat	Good	Fair	Poor	Treat	
Baird	378	242	0	0	217	397	6	0	378	242	0	0	415	205	0	0	155	459	6	0	620
Baptie	200	240	359	0	185	239	375	0	280	224	295	0	184	240	375	0	136	160	503	0	799
Barton	44	211	502	123	0	88	792	0	62	255	563	0	0	167	713	0	0	26	0	854	880
Base Line	509	354	0	0	466	397	0	0	552	311	0	0	544	319	0	0	0	0	0	863	863
Bennett	92	108	0	0	90	110	0	0	134	66	0	0	102	98	0	0	90	110	0	0	200
Big Beaver	667	839	401	0	191	1220	496	0	667	839	401	0	782	782	343	0	140	0	0	1767	1907
Brock Creek	0	0	104	56	0	0	104	56	0	21	83	56	0	32	72	56	0	0	0	160	160
Bullion Gulch	0	1294	58	102	0	1294	160	0	509	814	131	0	262	1047	145	0	0	132	0	1322	1454
Camp Creek	911	1764	265	0	147	2499	294	0	1147	1558	235	0	1147	1558	235	0	142	313	0	2485	2940
Cherry Creek	163	926	0	0	163	926	0	0	534	555	0	0	534	555	0	0	0	0	0	1089	1089
Colorado Gulch	0	353	468	0	0	353	468	0	139	304	378	0	0	353	468	0	0	25	0	796	821
Cottonwood	146	3505	0	0	146	3505	0	0	1533	2118	0	0	146	3505	0	0	221	514	0	2916	3651
Courier	138	138	0	299	0	575	0	0	230	345	0	0	345	230	0	0	0	0	0	575	575
Cove	2090	2787	1742	348	70	4041	2856	0	1672	2996	2299	0	2438	2787	1742	0	3195	416	0	3356	6967
Cow Creek	950	155	0	0	619	486	0	0	983	122	0	0	1017	88	0	0	19	0	0	1086	1105
Crater	70	3452	0	0	70	3452	0	0	1444	2078	0	0	775	2747	0	0	176	0	0	3346	3522
Croy Creek	3900	2205	0	2373	4493	3137	848	0	3900	3645	933	0	5087	2882	509	0	424	0	0	8054	8478
Deer Creek (SV)	1224	1655	0	700	107	3472	0	0	1503	2076	0	0	1825	1754	0	0	143	0	0	3436	3579
Deer Creek (NC)	2187	781	62	100	2191	783	156	0	2504	501	125	0	2567	469	94	0	162	0	0	2968	3130
Dry Creek	2812	0	0	9993	1534	5367	5751	153	3706	4345	4601	153	4729	4472	3451	153	1130	0	0	11675	12805
Ear Creek	3269	363	0	0	3269	363	0	0	3414	218	0	0	3487	145	0	0	279	0	0	3353	3632
East Fork	1379	2014	795	1100	529	2750	2009	0	1639	2062	1587	0	1639	2062	1587	0	1240	0	0	4048	5288
Elk Creek	768	339	23	0	554	542	34	0	768	339	23	0	825	282	23	0	461	0	0	669	1130
Elk Mountain	121	294	0	598	0	962	51	0	405	608	0	0	405	608	0	0	0	0	0	1013	1013
Elkhorn	310	2285	226	0	310	2285	226	0	1213	1439	169	0	762	1833	226	0	200	0	0	2621	2821
Fairfield	243	237	0	160	13	627	0	0	262	378	0	0	390	250	0	0	38	0	0	602	640
Flat Top Sheep Co.	12989	12140	2823	147	5083	19481	3388	147	12989	12140	2823	147	14964	10729	2259	147	12826	1673	0	13600	28099
Fork	1	18	61	0	0	4	76	0	1	18	61	0	2	24	54	0	0	3	77	0	80
H & S	90	300	137	0	90	300	137	0	211	205	111	0	148	242	137	0	90	17	0	420	527
Hailey Creek	132	2513	0	0	132	2513	0	0	1137	1508	0	0	635	2010	0	0	134	591	0	1920	2645
Hatty Creek	103	88	29	0	68	119	33	0	117	77	26	0	117	77	26	0	0	0	0	220	220
Homestead	65	12	25	0	65	12	25	0	70	12	20	0	70	12	20	0	0	0	0	102	102
Hot Springs	400	352	0	200	114	838	0	0	447	505	0	0	533	419	0	0	322	0	0	630	952
Hyndman	0	11	0	349	0	360	0	0	144	216	0	0	72	288	0	0	0	0	0	360	360
Indian Creek	3452	4542	272	818	2998	4996	1090	0	3725	4451	908	0	5087	3270	727	0	864	0	0	8220	9084
Iron Mine	289	6787	144	0	289	6787	144	0	3033	4043	144	0	1661	5415	144	0	290	3980	0	2950	7220
Kent Canyon	454	560	0	1625	211	1557	871	0	845	1108	686	0	1003	1029	607	0	526	473	0	1640	2639
Lake Creek	346	1158	0	0	346	1158	0	0	812	692	0	0	572	932	0	0	0	0	0	1504	1504
Lava Lake	4821	4000	0	1477	4837	4632	617	212	4837	4632	617	212	6175	3499	412	212	5018	1815	0	3465	10298

TABLE A5-5 (cont.)

PROJECTED 20-YEAR CONDITION CHANGE
UNDER THE PROPOSED ACTION AND ALTERNATIVES
(PUBLIC LAND ACRES)

Allotment	Proposed Action				No Change				No Grazing				Lower Stocking				Greater Production				Total
	Good	Fair	Poor	Treat	Good	Fair	Poor	Treat	Good	Fair	Poor	Treat	Good	Fair	Poor	Treat	Good	Fair	Poor	Treat	Acres
Little	11	294	152	50	10	294	203	0	127	218	162	0	71	233	203	0	11	0	0	496	507
Little Beaver	1022	3624	0	0	1022	3624	0	0	2462	2184	0	0	1765	2881	0	0	252	0	0	4394	4646
Little Fish Creek	346	473	231	104	0	866	288	0	346	577	231	0	438	508	208	0	173	208	0	773	1154
Little Rock Creek	167	154	0	322	0	412	231	0	167	289	187	0	206	276	161	0	0	0	0	643	643
Little Wood	0	2625	576	0	0	2625	576	0	1056	1697	448	0	512	2113	576	0	0	2625	576	0	3201
Lower Rock Creek	1392	1233	239	1114	1396	1236	958	388	1396	1236	958	388	1556	1197	837	388	1207	403	0	2368	3978
Martin Canyon	87	2688	1344	217	87	2688	1561	0	1171	1908	1257	0	607	2168	1561	0	86	1626	0	2624	4336
McAtee	0	0	0	12	0	0	0	12	0	0	0	12	0	0	0	12	0	0	0	12	12
McFarland	0	508	97	0	0	508	97	0	206	321	78	0	103	405	97	0	0	145	0	460	605
McHan Creek	0	228	12	0	0	216	24	0	91	139	10	0	46	182	12	0	0	0	0	240	240
Mill Canyon	127	317	85	0	127	317	85	0	254	206	69	0	254	190	85	0	75	0	0	454	529
Mountain View	0	200	0	120	0	288	32	0	128	192	0	0	64	256	0	0	0	94	0	226	320
Muldoon	1083	4221	108	0	1083	4221	108	0	2760	2544	108	0	1948	3356	108	0	1080	3132	0	1200	5412
Muldoon Canyon	1952	3770	1010	0	404	5184	1144	0	2491	3299	942	0	2491	3299	942	0	741	471	0	5520	6732
North 40	0	67	45	30	0	67	75	0	27	99	16	0	13	54	75	0	0	40	0	102	142
Phillips Creek	34	115	13	0	49	113	0	0	94	68	0	0	39	110	13	0	24	10	0	128	162
Piney	131	276	0	77	131	300	53	0	252	189	43	0	189	252	43	0	130	5	0	349	484
Poison Creek	1867	1174	1814	480	1654	1227	2454	0	1654	1227	2454	0	2081	1387	1867	0	89	0	0	5246	5335
Poverty Flat	82	38	0	0	55	65	0	0	82	38	0	0	82	38	0	0	82	38	0	0	120
Powell Creek	24	176	0	0	16	184	0	0	90	110	0	0	52	148	0	0	0	0	0	200	200
Queens Crown	2555	993	0	0	1880	1668	0	0	2555	993	0	0	2732	816	0	0	520	0	0	3028	3548
Quigley	1254	4539	179	0	1254	4539	179	0	3046	2926	0	0	2150	3822	0	0	418	0	0	5554	5972
Red Elephant	930	714	16	0	930	714	16	0	1212	448	0	0	1079	564	17	0	450	0	0	1210	1660
Road Canyon	230	1197	3176	0	230	1197	3176	0	690	1381	2532	0	460	967	3176	0	222	221	0	4160	4603
Roanhide	1108	0	0	0	1108	0	0	0	1108	0	0	0	1108	0	0	0	39	0	0	1069	1108
Rocky Bar	0	647	0	0	0	647	0	0	259	388	0	0	129	518	0	0	0	647	0	0	647
Rota Run	55	567	61	0	55	567	61	0	280	355	48	0	171	451	61	0	0	0	0	683	683
Rough Creek	1844	57	0	0	1787	114	0	0	1825	76	0	0	1844	57	0	0	94	0	0	1807	1901
Scattered Tracts	88	65	172	0	68	65	192	0	94	78	153	0	81	52	192	0	0	0	0	325	325
Severe	88	112	0	0	42	156	2	0	104	94	2	0	104	94	2	0	0	0	0	200	200
Shale	0	200	316	91	0	200	407	0	79	200	328	0	42	158	407	0	0	199	48	360	607
Sheep Creek	0	4149	128	0	0	4149	128	0	1668	2523	86	0	813	3336	128	0	0	2267	0	2010	4277
Sheep Point	8	826	0	0	8	826	0	0	342	492	0	0	175	659	0	0	8	67	0	759	834
Sheep Trail	818	302	0	0	818	302	0	0	941	179	0	0	874	246	0	0	739	381	0	0	1120
Shirley	0	0	107	0	0	0	107	0	0	21	86	0	0	21	86	0	0	0	77	30	107
Silver Creek	0	0	2554	280	0	0	2834	0	0	567	2267	0	0	567	2267	0	0	0	109	2725	2834
Simpson	0	110	0	0	0	110	0	0	44	66	0	0	22	88	0	0	0	110	0	0	110
Slaughterhouse	0	3244	34	100	0	3277	101	0	1317	1993	68	0	642	2635	101	0	0	2343	0	1035	3378
Soldier	1008	0	0	0	1008	0	0	0	1008	0	0	0	1008	0	0	0	90	0	0	918	1008

TABLE A5-5 (cont.)

PROJECTED 20-YEAR CONDITION CHANCE
UNDER THE PROPOSED ACTION AND ALTERNATIVES
(PUBLIC LAND ACRES)

Allotment	Proposed Action				No Change				No Grazing				Lower Stocking				Greater Production				Total Acres
	Good	Fair	Poor	Treat	Good	Fair	Poor	Treat	Good	Fair	Poor	Treat	Good	Fair	Poor	Treat	Good	Fair	Poor	Treat	
South East Fork	1473	416	0	0	1058	831	0	0	1398	491	0	0	1549	340	0	0	176	0	0	1713	1889
South 120	22	95	3	0	22	95	3	0	59	61	0	0	41	79	0	0	12	108	0	0	120
Spring Creek	63	1222	282	0	63	1222	282	0	549	987	31	0	313	972	282	0	63	1222	282	0	1567
Square Mountain	46	125	79	22	0	151	98	23	59	111	79	23	59	111	79	23	23	0	0	249	272
Stocking	703	1034	331	0	62	1592	414	0	703	1034	331	0	703	1034	331	0	616	802	0	650	2068
Telfer	0	79	78	0	0	79	78	0	31	63	63	0	16	63	78	0	0	63	94	0	157
Three Mile	0	4	76	0	0	4	76	0	2	17	61	0	1	3	76	0	0	0	0	80	80
Timber Butte	1704	1704	1817	450	568	2837	2270	0	1703	2156	1816	0	1986	2100	1589	0	1717	458	0	3500	5675
Timber Gulch	817	1887	112	0	817	1887	112	0	1577	1211	28	0	1183	1521	112	0	263	0	0	2553	2816
Trail Creek	140	2099	93	0	140	2099	93	0	979	1283	70	0	560	1679	93	0	140	372	0	1820	2332
Upper Fish Creek	0	1678	0	0	0	1678	0	0	671	1007	0	0	336	1342	0	0	0	978	0	700	1678
Upper Rock Creek	572	2746	496	0	572	2746	496	0	1678	1755	381	0	1106	2212	496	0	152	0	0	3662	3814
Upper Slaughterhouse	0	907	0	50	0	957	0	0	383	574	0	0	191	766	0	0	0	0	0	957	957
Water Gulch	0	509	72	150	0	512	219	0	205	351	175	0	102	410	219	0	0	47	0	684	731
West Bellevue	5235	275	0	0	5014	496	0	0	5235	275	0	0	5290	220	0	0	374	0	0	5136	5510
West Fork Fish Creek	378	781	0	100	378	781	100	0	692	491	76	0	529	655	75	0	376	563	0	320	1259
Willow Creek	21	367	129	0	21	367	129	0	166	248	103	0	93	295	129	0	21	147	0	349	517
Wolftone	332	0	0	0	332	0	0	0	332	0	0	0	332	0	0	0	0	0	0	332	332
Woodbury	22	387	271	100	23	382	375	0	180	304	296	0	101	304	375	0	23	385	102	270	780
Total	75,552	24,804			53,889	40,844			105,974	33,262			101,888	31,528			38,907	1,874			240,033
	115,240		24,437		144,309		991		99,806		991		105,626		991		30,884		168,368		
Percent of Total	31.5	48.0	10.3	10.2	22.4	60.2	17.0	0.4	44.1	41.6	13.9	0.4	42.4	44.1	13.1	0.4	16.2	12.9	0.1	70.1	100.0
Percent Change from Present	+16.3		-7.7		+7.3		-1.0		+28.9		-4.1		+27.3		-4.9		+1.0		-17.2		
		-18.4		+9.8		-6.3		0.0		-24.8		0.0		-22.4		0.0		-53.5		+69.7	

TABLE A5-6

VEGETATION PRODUCTION
ON PUBLIC LAND BY ALLOTMENT

Allotment	Total Present Vegetation Production (Pounds)				Total Present Usable Vegetation Production 1/	20 Year Projected Total Usable Vegetation Production (Pounds) 2/				
	Grass	Forbs	Shrubs	Total Production		Proposed Action	No Change	No Grazing	Lower Stocking	Greater Production
Baird	148,172	158,564	316,264	623,000	192,793	208,216	192,793	227,496	208,216	177,370
Baptie	164,716	217,932	230,020	612,668	194,346	198,233	194,346	229,328	213,780	171,024
Barton	107,748	204,720	235,080	547,548	163,824	180,206	139,250	196,589	186,759	175,292
Base Line	275,078	83,816	317,364	676,256	234,834	239,531	234,834	281,801	263,014	270,059
Bennett	55,000	62,360	74,824	192,184	61,796	61,796	61,796	74,155	67,975	61,796
Big Beaver	409,814	160,560	481,524	1,051,898	365,428	383,699	365,428	431,205	409,279	416,588
Brock Creek	43,320	41,920	43,868	129,108	43,107	44,400	43,107	51,728	47,418	48,280
Bullion Gulch	377,330	319,204	393,828	1,090,362	366,932	385,279	366,932	425,641	396,286	447,657
Camp Creek	850,568	657,048	960,904	2,468,520	829,772	879,558	829,772	979,131	937,642	1,053,810
Cherry Creek	347,086	142,308	333,804	823,198	298,571	298,571	298,571	346,342	334,400	307,528
Colorado Gulch	224,480	197,192	287,748	709,420	233,475	240,479	233,475	270,831	266,161	252,153
Cottonwood	907,968	1,514,744	1,234,024	3,656,736	1,141,176	1,141,176	1,141,176	1,323,764	1,141,176	1,186,823
Courier	180,362	149,424	185,436	515,222	173,896	217,370	173,896	208,675	201,719	184,330
Cove	1,758,068	1,577,868	2,199,156	5,535,092	1,823,290	2,060,317	1,677,427	2,187,948	2,096,783	1,877,989
Cow Creek	322,924	123,700	354,480	801,104	281,007	314,728	281,007	331,588	323,158	306,298
Crater	454,444	599,888	788,544	1,842,876	574,330	574,330	574,330	666,223	620,276	614,533
Croy Creek	2,353,164	1,884,064	2,896,124	7,133,352	2,371,629	2,656,224	2,371,629	2,845,954	2,561,359	2,656,224
Deer Creek (SV)	794,348	634,956	945,880	2,375,184	792,383	895,392	792,383	950,860	887,469	887,469
Deer Creek (XC)	728,780	305,776	783,940	1,818,496	637,119	668,975	586,149	764,543	764,543	681,717
Dry Creek	2,924,278	3,882,968	4,329,460	11,136,706	3,515,246	4,007,380	3,023,111	4,218,295	3,761,313	4,042,533
Ear Creek	847,060	389,752	728,876	1,965,688	703,187	773,506	703,187	843,824	843,824	780,537
East Fork	1,071,596	1,719,008	1,703,996	4,494,600	1,391,549	1,655,943	1,391,549	1,642,028	1,530,704	1,795,098
Elk Creek	214,524	95,452	232,260	542,236	189,190	204,325	164,595	227,028	223,244	198,649
Elk Mountain	256,412	301,148	415,400	972,960	307,343	421,060	267,388	368,812	353,444	467,161
Elkhorn	717,376	561,164	840,748	2,119,288	709,166	723,349	709,166	836,816	723,349	772,991
Fairfield	163,406	56,800	217,484	437,690	150,274	118,960	101,063	126,329	121,065	122,118
Flat Top Sheep Co.	6,370,636	7,796,068	10,474,032	24,640,736	7,752,843	8,373,070	7,752,843	9,148,355	8,760,712	7,597,786
Fork	13,956	5,604	30,596	50,156	16,028	17,310	16,028	19,234	17,951	12,021
H & S	121,414	164,564	194,684	480,662	150,519	161,055	150,519	180,623	167,076	168,581
Hailey Creek	674,058	964,880	1,072,464	2,711,402	846,365	846,365	846,365	981,783	914,074	846,365
Hatty Creek	61,362	51,544	90,784	203,690	66,263	70,239	66,263	76,865	74,214	78,853
Homestead	31,930	24,832	40,712	97,474	32,351	33,321	32,351	38,821	35,586	33,321
Hot Springs	212,230	112,872	209,300	534,402	186,658	209,057	173,592	223,990	203,457	181,058
Hyndman	100,026	77,516	116,188	293,730	98,439	138,798	98,439	118,127	106,314	100,408
Indian Creek	2,104,188	1,858,968	2,522,416	6,485,572	2,147,440	2,319,235	2,147,440	2,533,979	2,340,710	2,426,607
Iron Mine	1,686,132	2,610,840	2,493,668	6,790,640	2,119,193	2,119,193	2,119,193	2,458,264	2,119,193	2,119,193
Kent Canyon	686,760	573,624	881,740	2,142,124	707,221	947,676	707,221	834,521	785,015	919,387
Lake Creek	518,574	434,276	654,812	1,607,662	531,559	542,190	531,559	616,608	531,559	542,190
Lava Lake	2,145,810	2,979,988	3,248,868	8,374,666	2,630,119	2,787,926	2,630,119	3,156,143	2,630,119	2,393,408
Little	126,168	171,272	149,364	446,804	143,243	154,702	143,243	171,892	166,162	184,783

TABLE A5-6 (cont.)

VEGETATION PRODUCTION
ON PUBLIC LAND BY ALLOTMENT

Allotment	Total Present Vegetation Production (Pounds)				Total Present Usable Vegetation Production 1/	20 Year Projected Total Usable Vegetation Production (Pounds) 2/				
	Grass	Forbs	Shrubs	Total Production		Proposed Action	No Change	No Grazing	Lower Stocking	Greater Production
Little Beaver	1,514,576	616,724	1,515,432	3,646,732	1,290,327	1,290,327	1,290,327	1,522,586	1,496,779	1,741,941
Little Fish Creek	242,088	346,000	543,588	1,131,676	343,441	384,654	315,966	412,129	398,391	398,391
Little Rock Creek	112,486	152,184	193,020	457,690	142,544	179,605	142,544	171,053	153,947	129,715
Little Wood	780,996	1,074,488	1,190,660	3,046,144	956,785	956,785	956,785	1,109,871	1,033,328	956,785
Lower Rock Creek	1,061,514	931,688	1,379,940	3,373,142	1,108,664	1,197,357	1,108,664	1,308,223	1,230,617	1,274,964
Martin Canyon	993,622	909,040	1,272,120	3,174,782	1,042,101	1,073,364	1,042,101	1,208,837	1,042,101	1,052,522
McAtee	0	0	0	0	0	0	0	0	0	0
McFarland	156,942	242,564	207,224	606,730	190,918	211,919	183,281	229,102	221,465	217,646
McHan Creek	66,512	24,412	72,689	168,608	58,780	63,482	54,078	70,536	61,131	70,536
Mill Canyon	75,894	45,996	79,636	201,526	15,755	16,543	14,652	18,906	18,276	18,433
Mountain View	43,424	39,096	57,344	139,864	45,822	54,986	39,407	54,986	51,321	49,946
Muldoon	1,370,730	1,724,768	1,953,712	5,049,210	1,604,985	1,604,985	1,604,985	1,893,882	1,733,384	2,086,480
Muldoon Canyon	1,532,460	1,332,152	1,887,380	4,751,992	1,571,113	1,649,669	1,571,113	1,853,913	1,712,513	1,806,780
North 40	29,538	42,212	52,956	124,706	38,561	41,646	38,561	44,731	42,417	49,358
Phillips Creek	54,280	24,908	52,256	131,444	48,431	48,431	44,556	58,117	52,305	56,664
Piney	112,816	7,156	131,188	251,160	100,994	105,034	92,914	121,193	117,153	108,063
Poison Creek	989,876	1,087,752	1,663,644	3,741,272	1,182,787	1,301,066	1,135,475	1,395,689	1,348,377	1,289,238
Poverty Flat	33,458	26,444	45,052	104,954	34,603	34,603	34,603	34,603	34,603	34,603
Powell Creek	34,530	20,076	37,864	92,470	31,750	34,290	28,575	38,100	36,512	38,735
Queens Crown	749,144	1,093,076	1,115,120	2,957,340	926,621	991,484	926,621	1,111,945	1,074,880	1,167,542
Quigley	1,645,490	1,334,560	1,937,148	4,917,198	1,640,672	1,673,485	1,640,672	1,903,179	1,689,892	1,804,739
Red Elephant	513,626	465,740	520,572	1,499,938	503,391	518,493	503,391	594,001	518,493	463,120
Road Canyon	767,204	1,109,780	1,363,476	3,240,460	1,001,916	1,052,012	1,000,916	1,202,299	1,082,069	1,232,357
Roanhide	430,860	187,876	359,788	978,524	352,350	387,585	352,350	408,726	387,585	426,344
Rocky Bar	166,118	236,488	339,632	742,238	227,089	227,089	227,089	267,965	236,173	227,089
Rota Run	103,686	70,120	122,816	296,622	100,077	105,081	100,077	118,091	105,081	80,062
Rough Creek	728,114	253,312	612,392	1,593,818	580,483	650,141	539,849	696,580	673,360	789,457
Scattered Tracts	1,397,048	1,170,492	1,825,168	4,392,708	1,447,439	1,534,285	1,447,439	1,736,927	1,505,337	1,621,132
Severe	84,800	31,112	103,184	219,096	75,974	79,013	75,974	91,169	88,130	83,571
Shale	114,688	150,904	165,036	430,628	136,329	154,052	117,243	163,595	141,782	144,509
Sheep Creek	1,099,192	1,457,912	1,698,708	4,255,812	1,338,751	1,338,751	1,338,751	1,552,951	1,445,851	1,512,789
Sheep Point	214,812	76,680	281,592	573,084	196,974	208,792	196,974	236,369	228,490	226,520
Sheep Trail	310,100	198,252	247,176	755,528	39,772	755,528	39,772	46,136	41,363	36,590
Shirley	10,686	8,928	10,056	29,670	10,086	11,670	10,086	11,670	11,670	11,095
Silver Creek	339,834	481,080	551,716	1,372,630	486,409	510,729	486,409	583,691	525,322	583,691
Simpson	24,948	36,652	36,652	98,252	28,534	98,252	28,534	33,099	28,534	29,675
Slaughterhouse	862,032	706,332	983,592	2,551,956	853,497	879,102	853,497	990,057	853,497	913,242
Soldier	376,922	131,484	338,052	846,458	305,845	318,079	305,845	354,780	342,546	354,780
South East Fork	390,284	350,640	424,700	1,165,624	388,977	435,654	388,977	451,213	435,654	505,670
South 120	25,076	30,288	43,884	99,248	31,081	33,567	27,973	36,054	36,054	29,527

TABLE A5-6 (cont.)

VEGETATION PRODUCTION
ON PUBLIC LAND BY ALLOTMENT

Allotment	Total Present Vegetation Production (Pounds)				Total Present Usable Vegetation Production 1/	20 Year Projected Total Usable Vegetation Production (Pounds) 2/				
	Grass	Forbs	Shrubs	Total Production		Proposed Action	No Change	No Grazing	Lower Stocking	Greater Production
Spring Creek	315,958	531,492	578,400	1,425,850	435,452	444,161	435,452	513,833	444,161	348,362
Square Mountain	64,396	61,296	93,184	218,876	70,818	75,067	70,818	84,982	75,067	77,192
Stocking	464,972	657,092	647,644	1,769,708	558,670	603,364	558,670	659,231	603,364	446,936
Telfer	30,904	47,020	39,720	117,644	37,137	37,880	37,137	43,822	43,079	36,394
Three Mile	21,932	8,244	26,692	56,868	19,700	21,276	17,730	23,640	22,852	23,640
Timber Butte	972,268	1,466,160	1,475,672	3,914,100	1,221,592	1,246,024	1,221,592	1,417,046	1,246,024	1,270,456
Timber Gulch	617,510	505,020	717,900	1,840,430	614,485	626,775	614,485	712,803	626,775	639,064
Trail Creek	598,216	732,732	832,984	2,163,932	690,537	704,348	690,537	814,834	759,591	939,130
Upper Fish Creek	422,648	617,420	621,300	1,661,368	521,004	531,424	521,004	604,365	531,424	489,744
Upper Rock Creek	1,097,862	884,988	1,368,040	3,350,890	1,112,188	1,145,554	1,112,186	1,290,138	1,178,919	1,379,113
Upper Slaughterhouse	225,016	206,932	254,560	686,508	227,881	239,275	227,881	264,342	250,669	312,197
Water Gulch	192,830	165,024	245,768	603,622	199,113	219,024	199,113	230,971	205,086	262,829
West Bellevue	1,665,704	1,257,952	1,934,512	4,858,168	1,630,968	1,777,755	1,630,968	1,924,542	1,826,684	1,957,162
West Fork Fish Creek	290,670	387,324	476,640	1,154,634	361,326	375,779	361,326	426,365	408,298	368,553
Willow Creek	104,662	47,296	112,828	264,786	92,362	99,751	79,431	110,834	107,140	99,751
Wolftone	101,026	96,956	105,968	303,950	101,244	103,269	101,244	117,443	103,269	107,319
Woodbury	150,110	197,404	260,576	608,090	189,550	202,819	174,386	227,460	216,087	219,878
Total				197,341,470	63,738,559	68,938,275	62,694,523	75,219,744	69,221,370	70,162,009
Percent Change						+8.2	-1.6	+18.0	+8.6	+10.1

1/ Total present usable production cannot be translated directly into AUMs without first taking into account the forage composition (percent grasses, forbs, and shrubs) and dietary requirements of the grazing animals. Refer to Appendix 2, Forage Allocation, for an explanation of dietary requirements and the forage allocation process.

2/ Projected changes are based on the expected effects of proposed stocking rates, seasons of use, grazing systems, and land treatments.

APPENDIX 6

WILDLIFE

This appendix contains fourteen tables which provide supportive information for the wildlife narrative in Chapters 3 and 4.

Table A6-1 lists big game use by allotment for 1980 and 1990. Numbers were obtained by applying Idaho Department of Fish and Game's present and future big game goals on an individual allotment basis.

The remaining 13 tables (A6-2 through A6-14) specify acres of wildlife habitat, by allotment, expected to either improve or deteriorate as a result of the proposed action and the four alternatives. The figures presented here are referenced in the Wildlife section of Chapter 4.

TABLE A6-1

CURRENT (1980) AND PROJECTED (1990)
DEER, ELK, AND ANTELOPE USE BY SEASON
AND ALLOTMENT ON PUBLIC LAND IN THE SVPA

Allotment	Deer Months Summer May 1 - Oct. 30		Deer Months Migration Apr. 16 - Apr. 30 Nov. 1 - Nov. 14		Deer Months Winter Nov. 15 - Apr. 15		Elk Months Summer May 1 - Oct. 30		Elk Months Winter Nov. 15 - Apr. 15		Antelope Months Summer Mar. 1 - Sept. 30	
	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990
Baird	22	66									39	45
Baptie	30	91	3	10							51	59
Barton	33	101										
Base Line	66	107	8	13					25	25		
Big Beaver	143	232	17	28	20	20			204	204		
Brock Creek	7	15	3	6								
Bullion Gulch	68	136	28	56		51						
Camp Creek	138	266	56	112								
Cherry Creek	82	133	10	16	30	30	20	20	153	153		
Colorado Gulch	38	77										
Cottonwood	133	406										
Courier	6	13								25		
Cove	70	140			73	325						
Cow Creek	12	19	10	16								
Crater	130	396										
Croy Creek	397	795	163	325		36						
Deer Creek (SV)	168	336			200	295						
Deer Creek (NC)	235	381	28	45	50	50	84	84	70	70		
Dry Creek	360	1098	52	171	600	2773						
Ear Creek	178	288	21	34			44	44				
East Fork	198	604			11	19					10	12
Elk Creek	79	128	9	15			6	6	21	21		
Elk Mountain	38	116					3	3	64	64		
Elkhorn	32	63							17	28		
Fairfield	15	24	5	8								
Flat Top Sheep Co.	1054	3211			305	500						
West Pasture			62	204							247	286
East Pasture											427	495
H & S	20	61										
Hailey Creek	99	302	11	36								
Hatty Creek	10	21	4	8								
Homestead	5	10	2	4								
Hot Springs	71	115	8	13								
Hyndman	4	8							19	31		
Indian Creek	102	204			245	627				148		
Iron Mine	271	827										

TABLE A6-1 (cont.)

CURRENT (1980) AND PROJECTED (1990)
DEER, ELK, AND ANTELOPE USE BY SEASON
AND ALLOTMENT ON PUBLIC LAND IN THE SVPA

Allotment	Deer Months Summer May 1 - Oct. 30		Deer Months Migration Apr. 16 - Apr. 30 Nov. 1 - Nov. 14		Deer Months Winter Nov. 15 - Apr. 15		Elk Months Summer May 1 - Oct. 30		Elk Months Winter Nov. 15 - Apr. 15		Antelope Months Summer Mar. 1 - Sept. 30	
	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990
Kent Canyon	123	248	21	43								
Lake Creek	21	42										
Lava Lake	290	884									152	176
Little	19	58	2	7								
Little Beaver	348	564	41	66			44	44	632	632		
Little Fish Creek	43	131									32	37
Little Rock Creek	30	60	12	25								
Little Wood	120	366	13	43			14	14	349	349		
Lower Rock Creek	186	372	76	152		126						
Martin Canyon	85	171				300				430		
McAtee	1	1										
McFarland	23	70										
McHan Creek	18	29	2	3								
Mill Canyon	40	65	5	8					10	10		
Mountain View	24	39	3	5								
Muldoon	202	616	22	72			7	7	166	166	37	43
Muldoon Canyon	76	152				1071			86	430		
North 40	5	15									9	10
Phillips Creek	12	19	1	2								
Piney	36	58	4	6					2	2		
Poison Creek	231	463		204	102	195			21	30		
Poverty Flat	6	11										
Powell Creek	15	24	2	3					1	1		
Queens Crown	4	12	15	49	1515	3469						
Quigley	67	134			175	341				135		
Red Elephant	78	156	32	63					41	41		
Road Canyon	158	482										
Roanhide	83	134	10	16			20	20				
Rocky Bar	24	73	3	10							35	41
Rota Run	32	64				60						
Rough Creek	143	232	17	28			36	36				
Scattered Tracts	15	30	6	12								
Severe	15	24	2	3								
Shale	11	34									17	20
Sheep Creek	160	488	18	59			10	10	235	235		

TABLE A6-1 (cont.)

CURRENT (1980) AND PROJECTED (1990)
DEER, ELK, AND ANTELOPE USE BY SEASON
AND ALLOTMENT ON PUBLIC LAND IN THE SVPA

Allotment	Deer Months Summer May 1 - Oct. 30		Deer Months Migration Apr. 16 - Apr. 30 Nov. 1 - Nov. 14		Deer Months Winter Nov. 15 - Apr. 15		Elk Months Summer May 1 - Oct. 30		Elk Months Winter Nov. 15 - Apr. 15		Antelope Months Summer Mar. 1 - Sept. 30	
	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990
Sheep Point	41	66	7	11					30	30		
Sheep Trail	74	120	9	30								
Shirley	5	10		4	2	37			10	15		
Silver Creek			12	39	43	98						
Simpson	4	12										
Slaughterhouse	38	76				150				30		
Soldier	76	123	9	18			16	16				
South East Fork	21	42										
South 120	4	12										
Spring Creek	59	180	6	20			4	4	99	99		
Square Mountain	10	22							3	5		
Stocking	78	235										
Telfer	6	18										
Three Mile	6	10	1	2								
Timber Butte	201	613			191	318					166	192
Timber Gulch	131	261			80	80			6	6		
Trail Creek	95	290										
Upper Fish Creek	63	192									-	
Upper Rock Creek	179	358										
Upper Slaughterhouse	11	22										
Water Gulch	8	16										
West Bellevue	258	516	106	211	95	613						
West Fork Fish Creek	47	143									6	7
Willow Creek	39	63	5	8	60	60						
Wolftone	16	31	6	12								
Woodbury	29	88										
TOTAL	8,557	20,630	968	2,354	3,797	11,644	308	308	2,264	3,415	1,228	1,423

TABLE A6-2

ALLOTMENTS AND ACRES OF DEER AND ELK WINTER RANGES
WITH LIVESTOCK GRAZING BEYOND OCTOBER 15
IN THE PROPOSED ACTION

Allotment	Season	Acres of Winter Range Affected
Deer Winter Areas		
Bullion Gulch	5/15 - 11/10	1,454
Croy Creek	5/15 - 11/10	2,495
Deer Creek (SV)	5/15 - 10/31	280
East Fork	5/1 - 11/30	150
Flat Top Sheep Co.	5/1 - 11/30	3,866
Muldoon Canyon	5/15 - 11/15	4,490
Quigley	5/15 - 11/10	2,488
Rota Run	5/15 - 10/31	683
Slaughterhouse	5/1 - 11/10	1,406
Timber Gulch	5/15 - 11/10	640
West Bellevue	5/15 - 11/10	2,138
Total		20,090
Elk Winter Areas		
Big Beaver	6/1 - 6/30; 10/16 - 11/30	1,500
Elkhorn	5/15 - 11/10	375
Little Beaver	5/20 - 11/15	4,646
Little Wood	5/1 - 6/15; 9/1 - 11/30	3,100
Martin Canyon	5/15 - 11/10	2,245
Muldoon	5/1 - 11/15	1,480
Muldoon Canyon	5/15 - 11/15	2,245
Quigley	5/15 - 11/10	2,488
Red Elephant	5/15 - 11/10	240
Sheep Creek	5/1 - 11/30	2,090
Timber Gulch	5/15 - 11/10	1,040
Total		21,449

TABLE A6-3

ALLOTMENTS AND ACRES OF DEER AND ELK WINTER RANGES
WITH LIVESTOCK GRAZING BEYOND OCTOBER 15
FOR THE NO CHANGE ALTERNATIVE

Allotment	Season	Acres
Deer Winter Areas		
Bullion Gulch	5/1 - 11/10	1,454
Cove	5/1 - 11/10	1,680
Deer Creek (SV)	5/1 - 11/10	280
Croy Creek	5/1 - 11/10	2,495
Dry Creek	5/1 - 11/10	9,441
East Fork	5/1 - 11/30	150
Flat Top Sheep Co.	5/1 - 11/30	3,866
Indian Creek	5/1 - 11/10	2,190
Muldoon Canyon	5/1 - 11/10	4,490
Queens Crown	5/1 - 11/30	3,548
Quigley	5/1 - 11/10	2,488
Rota Run	5/1 - 11/10	683
Silver Creek	5/1 - 11/30	1,640
Slaughterhouse	5/1 - 11/10	1,406
Timber Butte	5/1 - 11/30	2,460
Timber Gulch	5/1 - 11/10	640
West Bellevue	5/1 - 11/10	2,138
Total		41,049
Elk Winter Areas		
Big Beaver	6/1 - 11/30	1,500
Courier	5/1 - 11/10	490
Elk Mountain	5/1 - 11/30	570
Elkhorn	5/1 - 11/10	375
Hyndman	5/1 - 11/10	600
Indian Creek	5/1 - 11/10	2,190
Little Beaver	5/20 - 11/15	4,646
Little Wood	5/1 - 11/30	3,100
Martin Canyon	5/1 - 11/10	2,245
Muldoon	5/1 - 11/10	1,480
Muldoon Canyon	5/1 - 11/10	2,245
Poison Creek	5/1 - 11/10	260
Quigley	5/1 - 11/10	2,488
Red Elephant	5/1 - 11/10	240
Sheep Creek	5/1 - 11/30	2,090
Shirley	5/1 - 11/10	107
Spring Creek	5/1 - 11/30	880
Square Mountain	5/1 - 11/10	40
Timber Gulch	5/1 - 11/10	1,040
Total		26,586

TABLE A6-4

ALLOTMENTS AND ACRES OF BIG GAME HABITAT
EXPECTED TO IMPROVE DUE TO GRAZING SYSTEM CHANGES
IN THE LOWER STOCKING ALTERNATIVE

Allotment	Acres of Wildlife Habitat Improving				
	Deer Winter	Deer Summer	Deer Migratory	Elk Winter	Elk Summer
Big Beaver		(1,907) 1/	(1,907)	(1,500)	
Cow Creek		(160)	(1,105)		
Deer Creek (NC)		3,130 2/	3,130	(3,130)	2,780
Homestead		102	102		
Three Mile		80	80		
Willow Creek		517	517		
Additional Acres Improved	0	3,829	3,829		2,780
Acres Improved in Proposed Action	20,802	96,560	43,260	11,720	8,765
Total Acres Improved in the Lower Stocking Alternative	20,802	100,389	47,089	11,720	11,545

1/ Number in brackets would be improved in the proposed action but would be additionally improved in the Lower Stocking alternative.
2/ Non-bracketed numbers are new acres improved in the Lower Stocking alternative, in addition to acres improved in the proposed action.

TABLE A6-5

ALLOTMENTS AND ACRES OF SAGE GROUSE HABITAT
EXPECTED TO IMPROVE DUE TO GRAZING SYSTEM CHANGES
IN THE LOWER STOCKING ALTERNATIVE

Allotment	Acres of Sage Grouse Habitat Improving on Public Lands
Elk Mountain	529
Flat Top Sheep Co.	9,825
Little Rock Creek	539
Shirley	122
Timber Butte	1,226
Total	12,241

TABLE A6-6

DEER SUMMER RANGE EXPECTED TO IMPROVE
DUE TO GRAZING SYSTEM CHANGES
IN THE GREATER PRODUCTION ALTERNATIVE

Allotment	Acres
Base Line	863
Big Beaver	1,907
Camp Creek	2,940
Courier	575
Cove	6,239
Cow Creek	160
Deer Creek (SV)	3,579
Deer Creek (NC)	3,130
Ear Creek	3,632
East Fork	5,288
Elk Creek	1,130
Elk Mountain	1,013
Flat Top Sheep Co.	28,099
Hatty Creek	220
Hot Springs	952
Indian Creek	9,084
Kent Canyon	2,639
Little Fish Creek	1,154
Little Rock Creek	643
Muldoon Canyon	6,749
Queens Crown	100
Roanhide	1,108
Rough Creek	1,901
Scattered Tracts	325
Severe	200
Soldier	1,008
South East Fork	1,889
Square Mountain	230
Stocking	2,068
Timber Butte	5,355
West Bellevue	5,510
Total	99,690

TABLE A6-7

EXPECTED DEER SUMMER RANGE DETERIORATION DUE TO
GRAZING SYSTEM CHANGES IN THE GREATER PRODUCTION ALTERNATIVE

Allotment	Acres
Croy Creek	8,478
Dry Creek	9,605
Phillips Creek	162
Total	18,245

TABLE A6-8

EXPECTED DEER WINTER RANGE IMPROVEMENT DUE TO
GRAZING SYSTEM CHANGES IN THE GREATER PRODUCTION ALTERNATIVE

Allotment	Acres
Cove	1,680
Deer Creek (SV)	280
East Fork	150
Flat Top Sheep Co.	3,866
Indian Creek	2,190
Muldoon Canyon	4,490
Queens Crown	3,548
Timber Butte	640
West Bellevue	2,138
Total	18,982

TABLE A6-9

EXPECTED DEER WINTER RANGE DETERIORATION
DUE TO GRAZING SYSTEM CHANGES IN
THE GREATER PRODUCTION ALTERNATIVE

Allotment	Acres
Croy Creek	2,495
Dry Creek	9,441
Total	11,936

TABLE A6-10

EXPECTED DEER MIGRATION HABITAT IMPROVEMENT
DUE TO GRAZING SYSTEM CHANGES IN
THE GREATER PRODUCTION ALTERNATIVE

Allotment	Acres
Base Line	863
Big Beaver	1,907
Camp Creek	2,940
Cow Creek	1,105
Deer Creek (NC)	3,130
Ear Creek	2,378
Elk Creek	1,130
Fairfield	640
Flat Top Sheep Co.	15,251
Hatty Creek	220
Hot Springs	952
Kent Canyon	2,639
Little Rock Creek	643
Roanhide	1,108
Rough Creek	1,901
Scattered Tracts	325
Severe	200
Soldier	1,008
West Bellevue	5,510
Total	43,850

TABLE A6-11

EXPECTED DEER MIGRATION HABITAT DETERIORATION
DUE TO GRAZING SYSTEM CHANGES IN
THE GREATER PRODUCTION ALTERNATIVE

Allotment	Acres
Croy Creek	8,478
Dry Creek	12,805
Phillips Creek	162
Total	21,445

TABLE A6-12

EXPECTED ELK SUMMER RANGE IMPROVEMENT DUE TO
GRAZING SYSTEM CHANGES IN THE GREATER PRODUCTION ALTERNATIVE

Allotment	Acres
Deer Creek	2,780
Elk Creek	320
Roanhide	1,108
Rough Creek	1,901
Soldier	1,008
Total	7,117

TABLE A6-13

EXPECTED ANTELOPE SUMMER RANGE IMPROVEMENT
DUE TO GRAZING SYSTEM CHANGES IN THE GREATER PRODUCTION ALTERNATIVE

Allotment	Acres
East Fork	280
Flat Top Sheep Co.	10,280
Little Fish Creek	480
Timber Butte	4,540
Total	15,580

TABLE A6-14

EXPECTED ELK WINTER RANGE IMPROVEMENT
DUE TO GRAZING SYSTEM CHANGES IN THE GREATER PRODUCTION ALTERNATIVE

Allotment	Acres
Base Line	585
Big Beaver	1,500
Courier	490
Deer Creek (NC)	3,130
Elk Creek	970
Elk Mountain	570
Indian Creek	2,190
Muldoon Canyon	2,245
Square Mountain	40
Total	11,720

APPENDIX 7

CULTURAL RESOURCES

Inventory Procedures

Cultural resources inventory in the SVPA consisted primarily of the completion of a Class II Cultural Resource Inventory. This is a sample inventory in which only a predetermined portion of the study area is surveyed. In the SVPA the Class II inventory was a 5 percent stratified random sample, as outlined below. A Class I Inventory (review of existing literature) for the SVPA has not yet been funded and therefore has not been completed. Class III (intensive) inventories are project- or site-specific and are performed during project development prior to implementation. They represent on-going inventory work.

The objective of the Class II inventory was to develop planning and management strategies based on a statistically derived projection of the nature, density, diversity, and location of cultural resources on public lands within the SVPA. The information was derived from a field examination of a randomly selected sample. Because of land ownership patterns, the sample units were limited in size to 40 acre tracts. This sample unit size insured comparable analytical frames for each of the three planning units in the SVPA.

The population sampled corresponded to the public lands in the SVPA, approximately 240,000 acres. State and privately owned lands were not inventoried except in cases where such land(s) had to be crossed to reach public lands or where discovered cultural resource sites crossed public-private or public-State land boundaries.

Stratification

The SVPA was stratified on two bases for purposes of the Class II inventory: drainage nets and topography. In all cases where they were available, USGS 7 1/2' or 15' topographic maps were used to determine the drainage nets. Thirty drainage nets were identified, as were fifteen areas not encompassed by any of the drainage nets. Upon completion of the initial drainage-nondrainage stratification, each stratum was again subdivided on the basis of topography. Two topographic categories were used: (1) areas of high relief and (2) areas of low and moderate relief.

Ideally, at least 10 percent of the public land acres in the SVPA should have been inventoried on foot. However, due to funding and manpower limitations, this level could not be achieved. In the SVPA approximately 12,140 acres were surveyed in the Class II inventory. This represents 5 percent of the public land acres. Most of these were in areas of low or moderate relief.

In the western (Camas County) portion of the SVPA five strata based on drainages and three non-drainage strata were identified. Of the public land acres, approximately 4,340 were inventoried for Class II, 15.5 percent of the total public land acres in this area. Some of this land in low relief was sampled on a judgmental (non-random) basis because of prior knowledge that the Camas Prairie served as a significant resource exploitation for aboriginal populations. Since most of Camas Prairie is privately owned, it was felt that lands still in public ownership should be more intensively surveyed for the presence of cultural resources.

In the central (Sun Valley) portion of the SVPA ten drainage and eight non-drainage strata were identified. Most of these were in areas of high to extremely high relief. Only 1,360 of the approximately 97,000 public land acres in this portion were inventoried on foot for Class II. Further, this area has been significantly impacted in the historic period. Many of the sites, especially those related to the mining activity, are known, although most have not been formally recorded.

In the eastern (Muldoon) portion of the SVPA fifteen drainage nets were identified along with four non-drainage strata. As this was the largest portion of the SVPA in terms of public land acres, a significant Class II inventory effort was undertaken in it. For Class II, 6,560 acres were inventoried for cultural resources. In addition approximately 780 acres in this portion have been intensively inventoried.

The field methodology employed followed the guidelines set forth in BLM Cultural Resource Manual 8111, specifically 8111.14B. Inventory personnel used pedestrian (on-foot) reconnaissance techniques, utilizing adjacent sweeps following the general contours of each 40 acre inventory unit. A 50 to 100 meter spacing between crew members was generally maintained. However, where appropriate rationale could be provided, especially on exceedingly steep slopes, spacing between sweeps ranged as high as 500 meters.

General collections were not obtained from each site. Artifacts were collected from the surface of sites if they were diagnostic (identifiable as to cultural group or time period) and/or intact.

Table A7-1 portrays the known cultural resource site data for the SVPA.

TABLE A7-1

KNOWN CULTURAL RESOURCE SITE DATA
SUN VALLEY PLANNING AREA 1/

Site Numbers	Legal Status/ Planning Unit	Cultural Affiliation/ Historic Theme	Temporal Placement	Site Type	Site Function	Site Size (Approximate)	Site Condition	Agents of Deterioration	Formal Recognition Status
10BN2	P/M	PA	U	LS	U	U	U	U	---
10BN4	P/M	PA	U	RS,LS	TSC	U	U	U	---
10BN5	P/SV	PA	U	LS	TSC?	U	U	U	---
10BN9	V/SV	PA	Early Archaic	LS	LM	U	U	U	---
10BN23	P/SV	PA	U	LS	LM	U	U	U	---
10BN24	P/SV	PA,H?	U	Q	LM	U	U	U	---
10BN25	P/SV	PA,H?	U	Q	LM	U	U	U	---
10BN26	P/SV	PA	U	LS	LM,TSC?	U	U	U	---
10BN27	P/SV	PA	U	Hearth	TSC?	U	U	U	---
10BN28	P/SV	PA	U	LS	U	U	U	U	---
10BN38	V/SV	PA	U	LS	LM	8500m^2	E	7,22	---
10BN39	V,P/SV	PA	U	LS	LM,TSC	21,000^2	G	3,22	---
10NB40	V/SV	PA	U	LS	LM,TSC	16,500m^2	F	3,6,7.22	PNR
10BN42	V/M	PA	U	LS	TSC	4500m^2	G	6,7,22	---
10BN43	V,P/M	PA	U	LS	LM	16,500m^2	G	6,17,22	---
10BN73	V,P/M	PA	U	LS	LM,TSC?	160,000m^2	F	7,17?,20,22	PNR
10BN74	V/M	PA	U	LS	LM	12,000m^2	P	2,7,17,20,21, 22	---
10BN75	V/M	PA	U	LS	LM,L?	25m^2	G	20,22	---
10CM7	P/NC	PA Palen-Indian	Upper Pleistocene -Holocene	Cache	LM	U	D	3,23	---
10CM9	P/NC	PA	U	U	U	U	D	3,23	---
10CN31	P?/NC	PA	U	P	U	U	U	U	---
I5-77-12	V/NC	P?A	U	LS	LM	2,500m^2	G	20,22	---
I5-77-13	V/NC	P?A	U	LS	TSC,L	1,250m^2	G	20,22	---
I5-77-14	V/NC	P?A	U	LS	LM,TSC?	400m^2	G	20,22	---
I5-78-2	V/M	PA	U	LS	TSC	40,000m^2	F	7,17,20,22	---
I5-78-5	V/M	PA	U	LS	LM	100m^2	G	20,22	---
I5-78-7	V/M	PA	U	LS	LM	10,000m^2	F	7,22,23	---
I5-78-9	V/SV	PA	U	LS	TSC	3,000m^2	F	7,20,22,23	---
I5-78-10	V/SV	PA	U	LS	LM,TSC	40,000m^2	P	4,7,17,22,23	---
I5-78-12	V/M	H	1900+	D	WD	100m^2	G	7,22	---
I5-78-13	V/M	PA,H?	U	Q	LM	80,000m^2	E	22	---
I5-78-14	V/SV	PA	U	LS	TSC	1,875m^2	P	7,17?,22,23	---
I5-78-15	V/SV	PA	U	LS	LM	2,000m^2	P	7,17?,22	---
I5-78-19	V/M	H	1880+	D	WD	100m^2	P	7,20,22,23	---
I5-78-20	V/M	H	1880+	2C	H?	U	F	22,U	---
I5-78-23	V/M	H	1880+	2C	H?	U	F	22,U	---
I5-78-24	V,FS/M	H	1880+	C,B	H?	U	U	22,U	---
I5-78-25	V,FS/M	H	1880+	C	U	U	U	22,U	---

TABLE A7-1 (cont.)

KNOWN CULTURAL RESOURCE SITE DATA
SUN VALLEY PLANNING AREA 1/

Site Numbers	Legal Status/ Planning Unit	Cultural Affiliation/ Historic Theme	Temporal Placement	Site Type	Site Function	Site Size (Approximate)	Site Condition	Agents of Deterioration	Formal Recognition Status
I5-78-26	V,FS/M	H	1880+	C	U	U	P	22,U	---
I5-78-28	P/SV	H	1800+	Kiln	M	U	P	U	---
15-79-1	V,P?/M	PA	U	LS	LM,L	500m^2	G	13?,20,22,23	---
I5-79-2	V/M	PA	U	LS	LM	660m^2	P	7,22	---
I5-79-3	V,P/M	PA	Early Archaic?	LS,LM	TSC	30,000m^2	F	6,7,22	PNR
I5-79-4-7	V/SV	PA	U	LS	LM,TSC	16,500m^2	F	3,6,7,22	PNR
I5-79-8	VM	PA	U	LS	LM	50m^2	G	22	---
I5-79-10	V/M	PA	U	LS	LM	4,000m^2	P	10,20,22	---
15-79-11	V/NC	H	1880+	4D,3F, H,R	WD,A	400,000m^2	P	10,20	---
I5-79-12 (10 loci)	V/NC	PA,H	U 1880+	LS,P,R, BrF	TSC,LM	120,000m^2	G	7,17,19,20, 22	PNR
I5-79-13 (3 loci)	V/NC	PA	U	LS	LM	2,000m^2	P	7,17,20,22	---
I5-79-I4	V,P/NC	H	1920	F	H	77m^2	P	10,17,19,22	---
I5-79-15 (2 loci)	V,P/NC	PA	U	LS	LM	735m^2	P	7,17,19,20, 22	---
I5-79-16	V/NC	PA	U	LS	LM	U	G	7,22	---
I5-79-17	V/NC	PA	Archaic	LS	LM	840m^2	G	7,10,22	---
15-79-19	P/NC	H	1884	T	A	U	U	U	---
I5-79-20	P/NC	H	1913	T	A	U	U	U	---
15-79-21	U/NC	H	1884	T	A	U	U	U	---
I5-79-22	U/NC	PA	U	P	U	U	U	U	---
15-79-23	P/NC	H	1905	T	A	U	U	U	---
15-79-24 (4 loci)	U/NC	PA	U	LS	TSC	U	U	U	---
I5-79-25	P/NC	H	1865	Military Camp	Protection	U	U	U	---
I5-79-26	P/SV	H	1886	Hiawatha Hotel	Commerce	U	D	10	NR
15-79-27	P/SV	H	1884	Homer Pound House	House	U	U	U	NR
I5-79-28	P/SV	H	1885	Church	Ritual	U	U	U	PNR
15-79-29	V,P,S/SV	H	1880+	Mining District	M	V	V	1,4,10,15,17, 22	---
I5-79-30	P/SV	H	1880+	T	M	U	U	U	---
I5-79-31	P/SV	H	1884	Bank	Commerce	U	U	U	---
15-79-32	P/SV	H	1887	Bank	Commerce	U	U	U	---
I5-79-33	P/SV	H	1885	Church	Ritual	U	U	U	NR
I5-79-35	P/SV	H	1880+	T	M	U	P	U	---
I5-79-36	P/SV	H	U	Museum	Museum	U	E	U	---
I5-79-37	County/SV	H	1880+	Court-house	Legal Administrative	U	U	U	NR
I5-79-38	P/SV	H	1880	T	M	U	D	U	---
I5-79-39	P/SV	H	1880	T	M	U	U	U	---

TABLE A7-1 (cont.)

KNOWN CULTURAL RESOURCE SITE DATA
SUN VALLEY PLANNING AREA 1/

Site Numbers	Legal Status/ Planning Unit	Cultural Affiliation/ Historic Theme	Temporal Placement	Site Type	Site Function	Site Size (Approximate)	Site Condition	Agents of Deterioration	Formal Recognitioo Status
I5-79-40	P/SV	H	1880+	Drug Store	Commerce	U	U	U	---
I5-79-41	P/SV	H	1886	T	Railroad	U	U	U	---
I5-79-42	P/M	H	1880+	B	A	U	G	U	---
I5-79-43	P/M	H	1880+	T	M	U	P	17,22	---
I5-79-44	P/SV	H	1890	Building	Commerce	U	U	U	---
I5-79-45	P/SV	H	1881	Smelter	M	U	U	U	---
I5-79-46	P/SV	H	1880+	Church	Ritual	U	U	U	---
I5-79-48	V,P,S/SV	H	1879+	Mining District	M	V	V	1,4,10,15,17, 22	---
I5-79-49	P/M	H	1910	Dam	Dam	U	F	22	PNR
I5-79-50	P/NC	PA	U	LS	TSC	U	U	U	---
I5-79-52	V/M	PA	U	LS	U	U	U	U	---

1/ The following ahhrevlations have been used to complete the known Cultural Resource Site Data Table.

1. Site Numbers

The Smithsonian numbering system is used where site numbers are available.
10 = State of Idaho, CM = Camas County, BN = Blaine County
Shoshone District field numbers have been assigned to sites without assigned Smithsonian numbers:
I5 = Shoshone District; 77, 78, 79 = Year Recorded

2. Legal Status — Planning Unit

P = Prlvate, S = State, V = Public land, FS = Forest Service, U = Unknown — M = Muldoon, SV = Sun Valley, NC = North Camas

3. Cultural Affiliation/Historical Theme

PA = Prehistoric Aboriginal H = Historic Euro-American

4. Temporal Placement

U = Unknown

5. Site Type

LS = Lithic Scatter, RS - Rockshelter, P = Petroglyph, C = Cabin, T = Town, Q = Quarry, D = Dump, B = Barn, F = Foundatlon, R = Road, Br = Bridge, U = Unknown

6. Site Function

TSC = Temporary Seasonal Campsite, LM = Lithic Manufacture, WD = Waste Disposal, L = Lookout, H = Homestead, M = Mining, A = Agriculture

7. Approximate Site Size

U = Unknown V = Variable

8. Site Condition

E = Excellent G = Good F = Falr P = Poor D = Destroyed U = Unknown V = Varlable

9. Agents of Deterioration

1. Current occupancy and domestic construction
2. Recent agricultural development
3. Rights-of-way construction and use
4. Minerel exploration or development
6. Range facilities construction and use
7. Damage by livestock
10. Fire
13. Off-road vehicle use
15. Recreation Use
17. Vandalism
19. Damage by wildlife and ferel animals
20. Surfece erosion
21. Headcut or bank erosion
22. Weathering end Decay
23. Other

APPENDIX 8

VISUAL RESOURCES

Inventory Method

The BLM has established a systematic approach to inventorying visual resources and setting minimum standards for management of these resources (BLM Manual 8410-11).

A four-step process is used to determine Visual Resource Management (VRM) classes by (1) determining scenic quality, (2) determining visual sensitivity, (3) determining distance zones, and (4) combining these factors on a three-way matrix.

Scenery quality is rated on the basis of landform, color, water, vegetation, uniqueness, intrusions, and influence of adjacent scenery. Numerical values are assigned to these factors according to a given set of criteria for each factor. Areas to be rated for aesthetic quality (scenic quality rating units) are delineated on an overlay according to their similar physiographic and visual patterns and their similar impacts from intrusions (human degradation of scenery). These units are rated either A (high), B (moderate) or C (low) quality scenery. (See Illustrations 4 and 5.)

The second step in the analysis is the determination of visual sensitivity levels (an index to the relative degree of human response to visual changes). The criteria for determining visual sensitivity are user volume (both vehicular and pedestrian) and expressed user attitudes toward change. Based on these criteria, areas of similar sensitivity are mapped. (See Illustration 17.)

Third, visual distance zones are identified as foreground-middleground, background, or seldom-seen areas. Distance zones are determined in the field by actually traveling along each route and observing the area that can be viewed, then delineating the zones on an overlay.

Upon completion of these steps, scenery quality, visual sensitivity, and distance zones are overlaid to determine areas with different ratings. A three-way matrix (Illustration 23) combining these elements is utilized to determine the VRM class ratings. These Visual Resource Management classes provide guidelines or criteria for the analysis of proposed management practices, project locations and design in order to provide the desired protection, rehabilitation or enhancement of the visual resources.

Illustration 4
(.22)

Scenic Quality - Inventory and Evaluation Chart

SCENIC QUALITY
INVENTORY AND EVALUATION CHART

key factors	rating criteria and score		
landform	High vertical relief as expressed in prominent cliffs, spires or massive rock outcrops, or severe surface variation or highly eroded formations including major badlands or dune systems: or detail features dominant and exceptionally striking and intriguing such as glaciers. 5	Steep canyons, mesas, buttes, cinder cones and drumlins; or interesting erosional patterns or variety in size and shape of landforms; or detail features present and interesting though not dominant or exceptional. 3	Low, rolling hills, foothills or flat valley bottoms. Interesting detail landscape features few or lacking. 1
vegetation	A variety of vegetative types as expressed in interesting forms, textures, and patterns. 5	Some variety of vegetation, but only one or two major types. 3	Little or no variety or contrast in vegetation. 1
water	Clear and clean appearing, still, cascading white water, any of which are a dominant factor in the landscape. 5	Flowing, or still, but not dominant in the landscape. 3	Absent, or present, but not noticeable. 0
color	Rich color combinations, variety or vivid color; or pleasing contrasts in the soil, rock, vegetation, water or snow fields. 5	Some intensity or variety in colors and contrast of the soil, rock and vegetation, but not a dominant scenic element. 3	Subtle color variations, contrast or interest; generally mute tones. 1
influence of adjacent scenery	Adjacent scenery greatly enhances visual quality. 5	Adjacent scenery moderately enhances overall visual quality. 3	Adjacent scenery has little or no influence on overall visual quality. 0
scarcity	One of a kind; or unusually memorable, or very rare within region.. Consistent chance for exceptional wildlife or wildflower viewing, etc. 6	Distinctive, though somewhat similar to others within the region.. 2	Interesting within its setting, but fairly common within the region. 1
cultural modifications	Free from aesthetically undesirable or discordant sights and influences; or modifications add favorably to visual variety. 2	Scenic quality is somewhat depreciated by inharmonious intrusions, but not so extensive that the scenic qualities are entirely negated or modifications add little or no visual variety to the area. 0	Modifications are so extensive that scenic qualities are for the most part nullified or substantially reduced. -4

INSTRUCTIONS

Purpose: To rate the visual quality of the scenic resource on all BLM managed lands.

How to Identify Scenic Value: All Bureau lands have scenic value.

How to Determine Minimum Suitability: All BLM lands are rated for scenic values. Also rate adjacent or intermingling non-BLM lands within the planning unit.

When to Evaluate Scenic Quality: Rate for scenery under the most critical conditions (i.e., highest user period or season of use, sidelight, proper atmospheric conditions, etc.).

How to Delineate Rating Areas: Consider the following factors when delineating rating areas.

1. Like physiographic characteristics (i.e., land form, vegetation, etc.)

2. Similar visual patterns, texture, color, variety, etc.

3. Areas which have a similar impact from cultural modifications (i.e., roads, historical and other structures, mining operations, or other surface disturbances).

Explanation of Criteria
(See Illustration 5.)

NOTE: Values for each rating criteria are maximum and minimum scores only. It is also possible to assign scores within these ranges.

SCENIC QUALITY
A= 19-33
B= 12-18
C= 0-11

BLM MANUAL

Supersedes Rel 6-55

Rel. 8-7
8/25/78

8411 - UPLAND VISUAL RESOURCE INVENTORY AND EVALUATION

Scenic Quality - Explanation of Rating Criteria

landform

Topography becomes more interesting as it gets steeper or more massive, or more severely or universally sculptured. Outstanding landforms may be monumental, as the Grand Canyon, the Sawtooth Mountain Range in Idaho, the Wrangell Mountain Range in Alaska, or they may be exceedingly artistic and subtle as certain badlands, pinnacles, arches and other extraordinary formations.

vegetation

Give primary consideration to the variety of patterns, forms, and textures created by plant life. Consider short-lived displays when they are known to be recurring or spectacular. Consider also smaller scale vegetational features which add striking and intriguing detail elements to the landscape; e.g., gnarled or windbeaten trees, joshua trees, etc.

water

That ingredient which adds movement or serenity to a scene. The degree to which water dominates the scene is the primary consideration in selecting the rating score.

color

Consider the overall color(s) of the basic components of the landscape (i.e., soil, rock, vegetation, etc.) as they appear during seasons or periods of high use. Key factors to use when in rating "color" are variety, contrast and harmony.

adjacent scenery

Degree to which scenery outside the scenery unit being rated enhances the overall impression of the scenery within the rating unit. The distance which adjacent scenery will influence scenery within the rating unit will normally range from 0-5 miles, depending upon verticality of topography, vegetative cover and other such factors. This factor is generally applied to units which would normally rate very low in score, but the influence of the adjacent unit would enhance the visual quality and raise the score.

scarcity

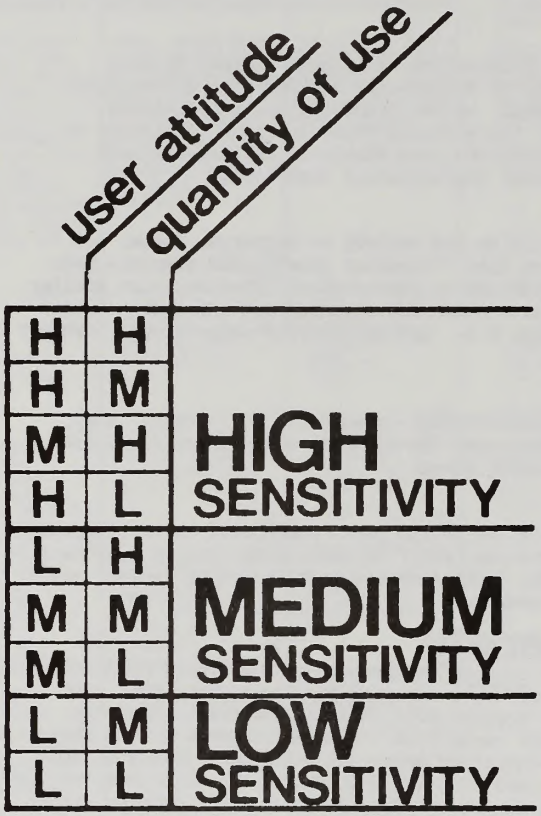
This factor provides an opportunity to give added importance to one or all of the scenic features that appear to be relatively unique or rare within one physiographic region. There may also be cases where a separate evaluation of each of the key factors does not give a true picture of the overall scenic quality of an area. Often it is a number of not so spectacular elements in the proper combination that produces the most pleasing and memorable scenery - the scarcity factor can be used to recognize this type of area and give it the added emphasis it needs.

cultural modifications

Consider the impact of change on the visual quality of the characteristic landscape. Cultural modifications in the landform/water, vegetation and addition of structures should be considered and may detract from the scenery in the form of a negative intrusion or actually complement or improve the scenery quality of a unit. Be careful not to confuse interest with scenery quality. Rate accordingly.

8411 - UPLAND VISUAL RESOURCE INVENTORY AND EVALUATION

Matrix for Determining Visual Sensitivity Levels



NOTE: User attitude will take precedence over quantity of use for this evaluation.

8411 - UPLAND VISUAL RESOURCE INVENTORY AND EVALUATION

Matrix For Determining Visual Resource Management Classes

		VISUAL SENSITIVITY[2] high			medium			low
special areas		I	I	I	I	I	I	I[4]
SCENIC QUALITY[1]	A	II	II	II	II	II	II	II
	B	II	III	III[5] / IV	III	IV	IV	IV
	C	III	IV	IV	IV	IV	IV	IV
DISTANCE ZONES[3]		fg-mg	bg	ss	fg-mg	bg	ss	ss

1 SCENIC QUALITY.....A, B, C
8411

2 VISUAL SENSITIVITY LEVEL.....high, medium, low
8411

3 DISTANCE ZONES.....fg-mg - foreground-middleground
8411 bg - background
ss - seldom-seen

4 MANAGEMENT CLASSES.....I, II, III, IV
8411

5 If the area being evaluated is adjacent to any VRM class III or higher, select class III; if lower, select VRM class IV.

NOTES: Class I applies only to classified special areas, e.g., Wilderness, Natural Areas, etc. This quality standard is established through legislation or policy.

Class V applies to areas identified in the scenic quality inventory where the quality class has been reduced because of unacceptable cultural modifications or areas that have the potential for enhancement.

Future and potential Class A areas or sites (identified in Recreation Information System) will be analyzed in Recreation **URA 3 and 4. Recommendations for MFP 1 (Recreation) should** specify VRM Class I, II, III to ensure future site or area protection.

Management Objectives of the VRM Classes:

Class I - Provide primarily for natural ecological changes, though very limited management activities may occur. This classification applies to wilderness areas, some natural areas, wild portions of wild and scenic rivers, or other similar situations. The contrast rating shall not exceed nine points.

Class II - Changes in the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. The contrast rating shall not exceed ten points.

Class III - Visual contrasts caused by a management activity may be evident but should remain subordinate to the existing characteristic landscape. The contrast rating shall not exceed sixteen points.

Class IV - Contrasts may attract attention and be dominant features in the landscape but must repeat the basic elements of the characteristic landscape. The contrast rating shall not exceed twenty points.

Class V - Identifies areas where changes are needed. The naturalistic character has been disturbed to a point where rehabilitation is needed to bring the area back into character with the surrounding landscape. This is an interim, short-term classification until one of the other objectives can be reached through rehabilitation and enhancement.

Contrast Rating

To evaluate specific projects, a Contrast Rating System is used to measure the degree of contrast between the proposed activity and the existing landscape. This score is compared with allowable levels of contrast for the appropriate Management Class. The comparison will determine if mitigation is required to reduce visual impacts.

The process first segregates a landscape into its major features (land/water surface, vegetation, structures) and each feature, in turn, into its basic elements (form, line, color, texture). Each element is assigned a weighted value based on its significance in the landscape (form = 4, most important, to texture = 1, least important).

The Contrast Rating compares the proposed activity with existing conditions element by element, feature by feature, according to the degree of contrast (3 = strong, 2 = moderate, 1 = weak, 0 = none). The element value multiplied by the degree of contrast indicates the magnitude of visual impact. For example, the form (4) of a proposed water tank might have a moderate (2) contrast with a flat landscape. Therefore, the form category of land/water surfaces would produce a Contrast Rating of 8 (4x2).

The Contrast Rating quickly reveals the existing features and their respective elements subject to the greatest visual impact. A total contrast score for each feature may then be used to define the overall contrast according to the following general categories:

- Contrast can be seen but does not attract attention (0-10 points).
- Attracts attention and begins to dominate (11-20 points).
- Demands attention and will not be overlooked by the average observer (21-30 points).

This score is then compared to the appropriate Mangagement Class to determine if contrast totals are acceptable. If the proposed project exceeds the allowable contrast, a Bureau decision is made to (1) redesign, (2) abandon or reject, or (3) proceed, but with mitigation measures stipulated to reduce critical impacts.

Since each activity proposed for BLM-administered land must pass through this evaluation, it has proven useful to identify and mitigate extreme contrasts to scenic quality in the planning/design stage of a proposed activity prior to submittal for approval. This pre-evaluation can save time and money because it forestalls a potentially lengthy revision process.

APPENDIX 9

ECONOMICS

Ranch Budgets

An interagency agreement between the Bureau of Land Management; U. S. Forest Service; and the Economics, Statistics and Cooperative Service (ESCS) was signed in November of 1979. This agreement provides for the ESCS to collect rancher economic data that the other two agencies can use in their planning, EIS work, and range management program documents. Basically, the agreement provides the ESCS with money to collect ranch budgets for the BLM and Forest Service.

The first step in implementing the agreement was to identify, on an annual basis, those areas to be studied by ESCS. The SVPA was the first area in Idaho to receive a complete analysis under the terms of the agreement. The first step in collecting the SVPA budgets was to provide ESCS with some basic data about the local ranching industry. These data included the names of the operators involved, herd sizes, kinds of livestock, seasons of use, county of residence, active grazing preference on BLM lands, use of other Federal lands, and sources of other livestock feed. Preliminary budgets were constructed from national survey data, local rancher data, and data from other sources including extension specialists, lending institutions, universities, and/or producer organizations. The preliminary budgets were circulated for review by the BLM and a sample of nine SVPA ranchers at a meeting in the Shoshone District Office on April 29, 1980. Input gathered at this meeting was used to develop the final budgets. The final budgets were distributed to all producers in the SVPA and the BLM. The final budgets are shown in Tables A9-1 through A9-7.

Linear Programing

Linear programing is a computational method for determining the best course of action when there are many alternatives, a specific or numerical objective exists, and the means for attaining it are limited. Linear programing maximizes or minimizes some objective function. The linear programing analysis for this EIS was done by ESCS. The basic input data came from the ranch budgets. The linear programing for this EIS maximized net rancher income, and the availability of AUMs from BLM lands was the primary limiting factor.

TABLE A9-1

SVPA RANCH BUDGETS
HERD SIZE: 0-99 CATTLE 1/

	Unit	Number	Average Weight (lb.)	Price/Cwt	Total Value ($)
SALES:					
Steer Calves	Head	14	425	69.15	4,114
Heifer Calves	Head	9	410	56.25	2,076
Yearling Steers	Head	6	625	64.63	2,424
Yearling Heifers	Head	4	600	55.17	1,324
Cull Cows	Head	6	980	28.84	1,696
TOTAL					11,634
TOTAL/COW					237.42

	Total Value ($)	Value/Cow ($)
CASH COSTS:		
BLM Grazing Fee	174	3.55
Forest Grazing Fee	---	----
Private Range Lease/Rent	---	----
State Lease	---	----
Hay (produce)	3,097	63.21
Hay (purchase)	---	----
Protein Supplement	---	----
Irrigated Pasture	900	18.36
Salt and Mineral	53	1.09
Concentrate Feeds	---	----
Veterinary & Medicine	205	4.19
Hired Trucking	222	4.54
Marketing	183	3.74
Fuel & Lubricants	627	12.80
Repairs (machine & equipment)	403	8.21
Land Taxes	290	5.92
Other Taxes	69	1.41
Insurance	260	5.31
Interest on Operating Capital	384	7.83
General Farm Overhead	480	9.80
Other Cash Costs	---	----
Hired Labor	23	.48
TOTAL CASH COSTS	7,372	150.44
OTHER COSTS:		
Family Labor	2,592	52.90
Depreciation	1,231	25.12
Interest on Investment Other Than Land	2,631	53.69
Interest on Land	18,240	372.24
TOTAL OTHER COSTS	24,694	503.95
TOTAL ALL COSTS	32,066	654.41
Return Above Cash Costs	4,262	86.98
Return Above Cash Costs and Family Labor	1,670	34.08
Return to Total Investment	439	8.95
Return to Land	-2,192	-44.73

1/ Production Assumptions: Herd Size 49 head; 86% calf crop; 4% calf death loss to weaning; 25 cows per bull; 14% replacement rate; 2% cow loss.

SOURCE: Economics, Statistics, and Cooperatives Service, USDA, Fort Collins, Colorado, 1980.

TABLE A9-2

SVPA RANCH BUDGETS
HERD SIZE: 100-299 CATTLE 1/

	Unit	Number	Average Weight (lb.)	Price/Cwt	Total Value ($)
SALES:					
Steer Calves	Head	52	425	69.15	15,282
Heifer Calves	Head	31	410	56.25	7,149
Yearling Steers	Head	22	625	64.63	8,887
Yearling Heifers	Head	14	600	55.17	4,634
Cull Cows	Head	24	980	28.84	6,783
TOTAL					42,736
TOTAL/COW					231.00

	Total Value ($)	Value/Cow ($)
CASH COSTS:		
BLM Grazing Fee	282	1.52
Forest Grazing Fee	227	1.23
Private Range Lease/Rent	---	----
State Lease	---	----
Hay (produce)	11,799	63.78
Hay (purchase)	---	----
Protein Supplement	---	----
Irrigated Pasture	986	5.33
Salt and Mineral	274	1.48
Concentrate Feeds	---	----
Veterinary & Medicine	413	2.23
Hired Trucking	838	4.53
Marketing	692	3.74
Fuel & Lubricants	2,781	15.03
Repairs (machine & equipment)	2,519	13.62
Land Taxes	1,598	8.64
Other Taxes	679	3.67
Insurance	1,080	5.84
Interest on Operating Capital	1,416	7.65
General Farm Overhead	2,231	12.06
Other Cash Costs	---	----
Hired Labor	67	.36
TOTAL CASH COSTS	27,882	150.71
OTHER COSTS:		
Family Labor	8,170	44.16
Depreciation	7,581	40.98
Interest on Investment Other Than Land	10,495	56.73
Interest on Land	72,906	394.08
TOTAL OTHER COSTS	99,152	535.95
TOTAL ALL COSTS	127,034	686.67
Return Above Cash Costs	14,854	80.29
Return Above Cash Costs and Family Labor	6,684	36.13
Return to Total Investment	-897	-4.85
Return to Land	-11,392	-61.58

1/ Production Assumptions: Herd Size 185 head; 85% calf crop; 5% calf death loss to weaning; 20 cows per bull; 16% replacement rate; 3% cow loss.

SOURCE: Economics, Statistics, and Cooperatives Service, USDA, Fort Collins, Colorado, 1980.

TABLE A9-3

SVPA RANCH BUDGETS
HERD SIZE: 300-999 CATTLE 1/

	Unit	Number	Average Weight (lb.)	Price/Cwt	Total Value ($)
SALES:					
Steer Calves	Head	155	425	69.15	45,553
Heifer Calves	Head	92	410	56.25	21,218
Yearling Steers	Head	67	625	64.63	27,064
Yearling Heifers	Head	39	600	55.17	12,910
Cull Cows	Head	68	980	28.84	19,219
TOTAL					125,962
TOTAL/COW					221.38

	Total Value ($)	Value/Cow ($)
CASH COSTS:		
BLM Grazing Fee	673	1.18
Forest Grazing Fee	91	.16
Private Range Lease/Rent	---	----
State Lease	---	----
Hay (produce)	36,281	63.76
Hay (purchase)	---	----
Protein Supplement	5,007	8.80
Irrigated Pasture	4,443	7.81
Salt and Mineral	859	1.51
Concentrate Feeds	---	----
Veterinary & Medicine	1,565	2.75
Hired Trucking	1,233	2.17
Marketing	910	1.60
Fuel & Luhricants	6,215	10.92
Repairs (machine & equipment)	5,333	9.39
Land Taxes	5,827	10.24
Other Taxes	768	1.35
Insurance	4,945	8.69
Interest on Operating Capital	5,094	8.95
General Farm Overhead	5,781	10.16
Other Cash Costs	---	----
Hired Labor	14,399	25.31
TOTAL CASH COSTS	99,434	174.75
OTHER COSTS:		
Family Labor	13,497	23.72
Depreciation	16,808	29.54
Interest on Investment Other Than Land	52,615	92.47
Interest on Land	268,049	471.08
TOTAL OTHER COSTS	350,969	616.81
TOTAL ALL COSTS	450,403	791.57
Return Above Cash Costs	26,529	46.62
Return Above Cash Costs and Family Labor	13,032	22.90
Return to Total Investment	-3,776	-6.64
Return to Land	-56,391	-99.11

1/ Production Assumptions: Herd Size 569 head; 82% calf crop; 5% calf death loss to weaning; 20 cows per bull; 16% replacement rate; 4% cow loss.

SOURCE: Economics, Statistics, and Cooperatives Service, USDA, Fort Collins, Colorado, 1980.

TABLE A9-4

SVPA RANCH BUDGETS
HERD SIZE: 1000 & OVER CATTLE 1/

	Unit	Number	Average Weight (lb.)	Price/Cwt	Total Value ($)
SALES:					
Steer Calves	Head	647	425	69.15	190,145
Heifer Calves	Head	333	410	56.25	76,798
Yearling Steers	Head	277	625	64.63	111,791
Yearling Heifers	Head	143	600	55.17	47,336
Cull Cows	Head	323	980	28.84	90,824
TOTAL					516,894
TOTAL/COW					207.67

	Total Value ($)	Value/Cow ($)
CASH COSTS:		
BLM Grazing Fee	943	.38
Forest Grazing Fee	650	.26
Private Range Lease/Rent	43,726	17.57
State Lease	---	----
Hay (produce)	84,412	33.91
Hay (purchase)	67,527	27.13
Protein Supplement	21,903	8.80
Irrigated Pasture	26,440	10.62
Salt and Mineral	3,763	1.51
Concentrate Feeds	---	----
Veterinary & Medicine	6,845	2.75
Hired Trucking	971	.39
Marketing	3,982	1.60
Fuel & Lubricants	27,180	10.92
Repairs (machine & equipment)	23,392	9.39
Land Taxes	25,487	10.24
Other Taxes	3,360	1.35
Insurance	21,629	8.69
Interest on Operating Capital	24,103	9.68
General Farm Overhead	25,288	10.16
Other Cash Costs	---	----
Hired Labor	62,985	25.31
TOTAL CASH COSTS	474,586	190.67
OTHER COSTS:		
Family Labor	19,191	7.71
Depreciation	73,525	29.54
Interest on Investment Other Than Land	230,158	92.47
Interest on Land	637,596	256.16
TOTAL OTHER COSTS	960,470	385.40
TOTAL ALL COSTS	1,435,056	576.54
Return Above Cash Costs	42,308	17.00
Return Above Cash Costs and Family Labor	23,117	9.29
Return to Total Investment	-50,408	-20.25
Return to Land	-280,566	-112.72

1/ Production Assumptions: Herd Size 2,489 head; 79% calf crop; 6% calf death loss to weaning; 20 cows per bull; 18% replacement rate; 5% cow loss.

SOURCE: Economics, Statistics, and Cooperatives Service, USDA, Fort Collins, Colorado, 1980.

TABLE A9-5

SVPA RANCH BUDGETS
HERD SIZE: 0-2499 SHEEP 1/

	Unit	Number	Average Weight	Price ($)	Total Value ($)
SALES:					
Slaughter Lambs	Head	615	102	59.81/Cwt	37,519
Feeder Lambs	Head	502	84	66.47/Cwt	28,029
Ewes	Head	143	130	17.48/Cwt	3,250
Wool	Lbs.	1,326	10	.78	10,343
Wool Incentive Payment	Dol.	10,343		.48	4,965
Unshorn Lamb Payment	Cwt.	1,049		1.43	1,500
TOTAL					85,606
TOTAL/EWE					65.85

	Total Value ($)	Value/Head ($)
CASH COSTS:		
BLM Grazing Fee	372	.29
Forest Grazing Fee	1,591	1.22
Irrigated Pasture	493	.38
Sheep Pellets	3,229	2.48
Hay (purchase)	---	----
Hay (produce)	15,369	11.82
Grain (purchase)	3,900	3.00
Protein Supplement	---	----
Other Feed	507	.39
Salt & Minerals	520	.40
Spray & Dipping	65	.05
Vet & Medicine	741	.57
Marketing	1,300	1.00
Trucking	2,775	2.13
Shearing & Tagging	1,867	1.44
Utilities	520	.40
Lamb Promotion	---	----
Organizations	208	.16
Legal and Accounting	364	.28
Wool Storage	208	.16
Predator Control	1,534	1.18
Ram Death Loss	527	.41
Machine Fuel & Lube	756	.58
Machine Repair	988	.76
Equipment Repair	390	.30
Labor	11,375	8.75
Land Tax	1,209	.93
Other Tax	195	.15
Insurance	832	.64
General Farm Overhead	1,359	1.03
Interest on Operating Capital	2,872	2.21
TOTAL CASH COSTS	56,066	43.13
OTHER COSTS:		
Family Labor	4,837	3.72
Depreciation	5,356	4.12
Interest on Investment Other Than Land	8,021	6.17
Interest on Land	59,379	45.68
TOTAL OTHER COSTS	77,593	59.68
Return Above Cash Costs	29,540	22.72
Return Above Cash Costs and Family Labor	24,703	19.00
Return to Total Investment	19,347	14.88
Return to Land Investment	11,326	8.71

1/ Production Assumptions - Herd Size 1,300 ewes; 115% docking rate; 7% lamb loss docking to market; 21% replacement rate; 45% of lambs sold as feeders; 10% ewe loss; 10 lbs. fleece weight; 50 ewes per ram.

SOURCE: Economics, Statistics, and Cooperatives Service, USDA, Fort Collins, Colorado, 1980.

TABLE A9-6

SVPA RANCH BUDGETS
HERD SIZE: 2500-4999 SHEEP 1/

	Unit	Number	Average Weight	Price ($)	Total Value ($)
SALES:					
Slaughter Lamba	Head	1,468	102	59.81/Cwt	89,557
Feeder Lamba	Head	1,201	84	66.47/Cwt	67,058
Ewes	Head	464	130	17.48/Cwt	10,544
Wool	Lbs.	3,647	10	.78	28,447
Wool Incentive Payment	Dol.	28,447		.48	13,654
Unshorn Lamb Payment	Cwt.	2,506		1.43	3,584
TOTAL					212,844
TOTAL/EWE					59.54

CASH COSTS:	Total Value ($)	Value/Head ($)
BLM Grazing Fee	115	.03
Forest Grazing Fee	820	.22
Irrigated Pasture	7,405	2.07
Sheep Pellets	277	.07
Hay (purchase)	23,845	6.67
Hay (produce)	47,655	13.33
Grain (purchase)	15,373	4.30
Protein Supplement	2,503	.70
Other Feed	358	.10
Salt & Minerals	1,180	.33
Spray & Dipping	72	.02
Vet & Medicine	1,108	.31
Marketing	3,218	.90
Trucking	6,113	1.71
Shearing & Tagging	6,078	1.70
Utilities	1,287	.36
Lamb Promotion	72	.02
Organizations	322	.09
Legal and Accounting	1,108	.31
Wool Storage	215	.06
Predator Control	1,931	.54
Ram Death Loss	1,332	.37
Machine Fuel & Lube	2,932	.82
Machine Repair	2,431	.68
Equipment Repair	894	.25
Labor	31,283	8.75
Land Tax	5,756	1.61
Other Tax	501	.14
Insurance	2,252	.63
General Farm Overhead	3,676	1.03
Interest on Operating Capital	9,207	2.58
TOTAL CASH COSTS	181,319	50.72
OTHER COSTS:		
Family Labor	18,000	5.03
Depreciation	15,301	4.28
Interest on Investment Other Than Land	22,058	6.17
Interest on Land	157,365	44.01
TOTAL OTHER COSTS	212,724	59.50
Return Above Cash Costs	31,525	8.82
Return Above Cash Costs and Family Labor	13,525	3.78
Return to Total Investment	-1,776	-.50
Return to Land Investment	-23,834	-6.67

1/ Production Asaumptiona - Herd Size 3,575 ewea; 105% docking rate; 7% lamb loss docking to market; 23% replacement rate; 45% of lambs sold as feeders; 10% ewe loss; 10 lbs. fleece weight; 50 ewes per ram.

SOURCE: Economics, Statiatica, and Cooperatives Service, USDA, Fort Collins, Colorado, 1980.

TABLE A9-7

SVPA RANCH BUDGETS
HERD SIZE: 5,000 AND OVER SHEEP 1/

	Unit	Number	Average Weight	Price ($)	Total Value ($)
SALES:					
Slaughter Lambs	Head	3,052	102	59.81/Cwt	186,191
Feeder Lambs	Head	2,497	84	66.47/Cwt	139,420
Ewes	Head	1,061	130	17.48/Cwt	24,110
Wool	Lbs.	8,323	10	.78	64,919
Wool Incentive Payment	Dol.	64,919		.48	31,161
Unshorn Lamb Payment	Cwt.	5,211		1.43	7,452
TOTAL					453,253
TOTAL/EWE					55.55

	Total Value ($)	Value/Head ($)
CASH COSTS:		
BLM Grazing Fee	1,330	.16
Forest Grazing Fee	4,325	.53
Irrigated Pasture	16,683	2.04
Sheep Pellets	571	.07
Hay (purchase)	54,400	6.67
Hay (produce)	69,885	8.56
Grain (purchase)	35,088	4.30
Protein Supplement	5,712	.70
Other Feed	5,816	.71
Salt & Minerals	2,603	.33
Spray & Dipping	163	.02
Vet & Medicine	2,530	.31
Marketing	7,344	.90
Trucking	23,954	2.94
Shearing & Tagging	18,972	2.32
Utilities	2,938	.36
Lamb Promotion	163	.02
Organizations	734	.09
Legal and Accounting	2,530	.31
Wool Storage	490	.06
Predator Control	4,406	.54
Ram Death Loss	3,109	.37
Machine Fuel & Lube	6,691	.82
Machine Repair	5,549	.68
Equipment Repair	2,040	.25
Labor	71,400	8.75
Land Tax	13,138	1.61
Other Tax	1,142	.14
Insurance	5,141	.63
General Farm Overhead	8,405	1.03
Interest on Operating Capital	20,371	2.50
TOTAL CASH COSTS	397,623	48.73
OTHER COSTS:		
Family Labor	19,037	2.33
Depreciation	34,925	4.28
Interest on Investment Other Than Land	50,347	6.17
Interest on Land	324,768	39.80
TOTAL OTHER COSTS	429,077	52.58
Return Above Cash Costs	55,630	6.82
Return Above Cash Costs and Family Labor	36,593	4.48
Return to Total Investment	1,668	.20
Return to Land Investment	-48,679	-5.97

1/ Production Assumptions - Herd Size 8,160 ewes; 100% docking rate; 7% lamb loss docking to market; 25% replacement rate; 45% of lambs sold as feeders; 12% ewe loss; 10 lbs. fleece weight; 50 ewes per ram.

SOURCE: Economics, Statistics, and Cooperatives Service, USDA, Fort Collins, Colorado, 1980.

Dynamic Regional Analysis Model

Direct impacts (e.g., changes to ranch income and changes in the construction industry) cause other impacts to occur. For example, when ranchers have less income they purchase fewer goods and services in town, lowering the merchant's income. This is called a secondary impact. A computer model called the Dynamic Regional Analysis Model (DYRAM) estimates these for analysis. The direct income impacts are inputted and the model calculates direct employment and secondary income and employment impacts. The model uses industry earnings combined with a 20 sector industry expected-transaction matrix compiled from the national input-output table to estimate net exports or imports by industry for the economy of a given area. Multipliers are computed; they refer to impacts on personal, not business, income. Multipliers are the ratio between the ultimate increase of income arising from an increment of investment and the initial new investment itself. For example, an initial income increase in the livestock industry creates additional (or secondary) increases in the livestock and other sectors of the economy. A multiplier estimates this addition. With initial income increased by $1,000 and a multiplier of 1.5, the total income increase would be $1,500, with $500 being the additional increase estimated by the multiplier. A detailed mathematical explanation of DYRAM may be found in the Annals of Regional Science, November 1975, pages 44-50.

Discounting

Because each alternative represents a different mix of livestock use and construction activities, the net present worth for each alternative was determined for comparative purposes. Present worth is the amount of money that will become a given amount at a stated time in the future. For example, at 10 percent interest $100 will grow to $110 in one year; therefore, the present worth of $110 one year from now at 10 percent interest is $100. If the end product is a series of payments, the present worth is the amount that will result in the sum of the series. The net present worth of each alternative then, is the sum of the present worths of the income streams associated with livestock, construction, etc. Discounting is the procedure whereby the present worth of future income is determined. The concept is the converse of growth in value due to accrued interest. The proposed action and the four alternatives have been discounted to reflect their present worth with an assumed interest rate of 7.375 percent (established by the Water Resources Council for use by Federal agencies in FY 1981). Table A9-8 shows the discounting procedure for the income change in the proposed action.

TABLE A9-8

DISCOUNTING PROCEDURE
FOR THE PROPOSED ACTION

Year	Cash Flow	Discounting Factor	Present Worth
1	+$ 47,210	.9313	+$ 43,967
2	46,593	.8674	40,412
3	46,662	.8078	37,692
4	40,756	.7523	30,660
5	51,213	.7006	35,881
6	61,670	.6525	40,240
7	72,127	.6077	43,830
8	82,584	.5659	46,738
9	93,041	.5271	49,039
10	287,877	.4909	141,319
11	287,877	.4572	131,617
12	287,877	.4258	122,578
13	287,877	.3965	114,143
14	287,877	.3693	106,313
15	287,877	.3439	99,001
Net Present Worth			$1,083,430

Recreation Income

The 1977 Outdoor Recreation Plan prepared by the State Department of Parks and Recreation identified the number of participant occasions and dollars spent on hunting and fishing during 1975. Both figures were for State Planning Region 4 which includes the SVPA. The figures were used to determine the dollars spent per activity occasion and the results were updated to 1979 dollars by using the consumer price index to account for inflation. These values were then applied to the projected changes in hunting and fishing activity occasions to estimate the income changes due to changes in recreation use. Table A9-9 shows how this process worked for the proposed action.

TABLE A9-9

RECREATION-RELATED INCOME DERIVATION
FOR THE PROPOSED ACTION

Type	1975 Participant Occasions 1/	1975 Dollars Spent 1/	1975 Dollars per Occasion	Inflation Adjustment Factor 2/	1979 Dollars per Occasion	Change in Participant Occasions 3/	Total Dollar Change
Fishing	827,184	$1,583,927	$1.92	1.3486	$2.59	0	$ 0
Hunting	589,967	$1,492,163	$2.53	1.3486	$3.41	+23,126	$78,860

1/ From 1977 Outdoor Recreation Plan, Idaho Department of Parks and Recreation, Region 4, Page 4.90, Table 4-69.

2/ Calculated from 1975 and 1979 Consumer Price Indexes of 161.2 and 217.4, respectively. Consumer Price Indexes from Table B-49, Economic Report of the President, Council of Economic Advisors, January 1980.

3/ A net change in use expected to result from the proposed action, as estimated in the Recreation section of Chapter 4.

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active grazing preference: The number of animal unit months (AUMs) of grazing that eligible livestock operators may annually license on public lands. Sometimes referred to as "grazing preference."

active use: Grazing preference which has been paid for and is presently being used. Active use combined with nonuse equals total active grazing preference.

aeolian: Applied to deposits which are due to the transporting action of the wind.

allotment: An area of public land designated and managed for livestock grazing. It consists of one or more pastures and may include private and/or State land.

allotment management plan (AMP): A documented program of grazing management for an allotment, developed in consultation with the livestock operators involved, and consistent with the applicable land use plan. It prescribes the manner and extent of livestock operations to be authorized, describes the proposed range improvements, and contains other provisions deemed appropriate by the BLM District Manager.

alluvium: A general category of deposits resulting from the operation of water, including the sediments laid down in river beds, flood plains, lakes, and fans at the foot of mountain slopes.

animal unit month (AUM): The amount of forage considered necessary to feed one cow or its equivalent for one month. For this EIS an AUM represents 800 pounds (air dried) of palatable forage.

annual plant: A plant that completes its life cycle and dies in one year or less.

antelope month: The amount of forage considered necessary to feed one antelope for one month. For this EIS it represents 54 pounds (air dried) of palatable forage.

apparent trend: (See observed apparent trend.)

aquifer: A water-bearing stratum of permeable rock, sand, or gravel.

average licensed use: The arithmetic mean, for a particular period, of authorized livestock grazing (in AUMs). If no trespass occurs, it is equivalent to average "actual use" as applied to livestock grazing.

bedrock: The solid rock that underlies soil or other unconsolidated material or that is exposed at the surface.

brush control: Reduction of the density or amount of shrubs in an area by burning, spraying, chaining, plowing, discing, or similar means.

climax vegetation: The natural biotic community, particularly vegetation, that would develop in the long term under undisturbed conditions with a given climate and soils. It would perpetuate itself until disturbed by an outside force.

cobbles: Rounded or partly rounded rock fragments 3 to 10 inches in diameter.

colluvium: A general category of loose soil or rock deposits, usually at the foot of a slope or cliff, brought there chiefly by gravity.

Compliance Statement 106/2(b): Under the Historic Preservation Act of 1966, the Advisory Council on Historic Preservation must be given an opportunity to comment on any action which may affect any site on or eligible for inclusion on the National Register of Historic Places. If the undertaking would cause a change in the quality or the character of the site, the Advisory Council and State Liaison Officer would consult with the agency to remove or mitigate the effect. Also referred to as 106 Statement.

condition: (See ecological condition.)

consumptive use (of water): The removal of water from an area by transpiration of plants and evaporation from soil, snow, water surfaces, and biological organisms.

critical habitat: A portion of the living area of a threatened or endangered plant or animal species that is essential to the survival or perpetuation of either the individuals or the entire population of that species.

crucial wildlife habitat: A portion of the living area of a wild animal species that is essential to the survival and perpetuation of either the individuals or the entire population.

cultural resources: Objects or places of historical, archaeological, or architectural significance, that are fragile, limited, and nonrenewable portions of the human environment.

deer month: The amount of forage considered necessary to feed one deer for one month. For this EIS it respresents 130 pounds (air dried) of palatable forage.

deferred use: Annual delay of livestock grazing until a specified occurrence or date in the growing season; acts to promote plant reproduction, establish new plants, and restore vigor in established plants.

deferred rotation: A grazing system that provides for annually alternating early use, usually in the spring, with deferred use, such as after flowering or seed ripe of the desirable forage plants.

drainage class (natural): The frequency and duration of periods of saturation, or partial saturation, during soil formation, as listed below.

somewhat excessively drained: Water is removed from the soil rapidly. The soils are shallow and steep and much of the water they receive is lost as runoff.

well drained: Water is removed from the soil readily, but not rapidly. Wetness does not inhibit growth of roots for significant periods during most growing seasons.

moderately well drained: Water is removed from the soil somewhat slowly during some periods. These soils are wet for only a short time during the growing season and affect the growth of some plants.

somewhat poorly drained: Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of some plants. These soils commonly have a high water table or receive additional water by seepage from surrounding areas.

poorly drained: Water is removed so slowly that the soil remains wet for long periods during the growing season. Wetness inhibits the growth of some plants. These soils have a high water table.

drawdown: The distance that the water level of a well or aquifer decreases immediately after water removal.

duripan: A soil layer cemented by iron oxide, silica, calcium carbonate, or other substances.

ecological community: An assemblage or grouping of similar plant populations that occupy the same general area.

ecological condition: The present state of vegetation on an ecological site in relation to the climax (natural potential) plant community for that site; often used interchangeably with "condition" or "range condition."

ecological site: A distinctive kind of rangeland that differs from others in its ability to produce a characteristic natural plant community. It is capable of supporting a native plant community typified by an association of species that differs from that of other ecological sites in the kind or proportion of species or in total production.

elk month: The amount of forage considered necessary to feed one elk for one month. For this EIS it represents 667 pounds (air dried) of palatable forage.

endangered species: Plants and animals considered by the Federal Government to be in immediate danger of extinction throughout all or significant portions of their range.

environment: The surrounding conditions, influences, and forces that affect or modify an organism and ultimately determine its form and survival.

environmental impact statement (EIS): A written document required by the National Environmental Policy Act (P.L. 91-190) for all major Federal actions that significantly affect the quality of the human environment. It systematically assesses the potential consequences of a proposed action and feasible alternatives on the existing environment.

ephemeral stream: A water channel that carries runoff only during precipitation events or snowmelt, and is otherwise dry.

erosion: A process of weathering, dissolution, abrasion, corrosion, and/or transportation by which soil or rocky material is removed from its established location on the earth's surface.

geologic erosion: Erosion caused by geologic processes acting over long periods and resulting in the wearing away of mountains and the building up of such landscape features as alluvial fans and terraces. Synonym: natural erosion.

accelerated erosion: Erosion that is much more rapid than geologic erosion, resulting mainly from activities the of man or other animals or from a catastrophe in nature, e.g., fire that exposes a bare surface.

exchange-of-use: An agreement between the BLM and an applicant having ownership or control of non-Federal land within a grazing allotment. The applicant is allowed to license a designated number of AUMs without payment, provided that during the length of the agreement the BLM has control and management of the non-Federal land for grazing purposes.

fluvioglacial: Pertaining to streams flowing from glaciers or to the deposits made by such streams.

forage: Browse and herbaceous plants available to and consumed by grazing animals.

forb: A broadleafed plant or herb; any herbaceous plant other than those in the grass, sedge, or rush families.

gravel: Rounded or angular fragments of rocks from 2 millimeters to 3 inches in diameter.

grazing cycle: A complete sequence of grazing in specified pastures in a certain order. Length of the cycle varies with different grazing systems.

grazing management facility: A structure such as a spring development, water pipeline, well, reservoir, fence, corral, or cattleguard installed to improve, control, and/or expand livestock grazing.

grazing system: Scheduled grazing use and nonuse of an allotment to reach identified goals or objectives by improving the quality and quantity of vegetation. See "deferred use," "deferred rotation," "rest rotation," and "seasonal."

ground cover: The percentage of surface area occupied by vegetation, litter, and rock.

habitat: A specific set of physical conditions that surround a single species, group of species, or large community. In wildlife management the major components of habitat are food, water, cover, and living space.

infiltration: The downward entry of water into the soil surface through pores in the soil. Rate and amount of infiltration are limited by size and abundance of pores, water absorption capability of the soil, and the rate at which water is applied to the surface.

interim management policy: The current BLM policy of managing lands having wilderness characteristics so as not to impair their suitability for preservation as wilderness, subject to certain exceptions and conditions, during the period of the wilderness review and until Congress acts on wilderness designation. This management is discussed in a BLM document entitled Interim Management Policy and Guidelines for Lands Under Wilderness Review, available at any BLM office.

inventoried grazing capacity: The calculated animal unit months of forage available for grazing, based on a vegetation sampling, trend, utilization, and actual use. For this EIS it is based on the biological limits of the plants to support long-term grazing, and the diets of the grazing animals.

key plant species: (1) forage species whose use serves to indicate the degree of use of associated species; and (2) those species that must, because of their importance, be considered in the management program.

land treatment: A management practice involving physical manipulation of vegetation. Includes prescribed burning, spraying, chaining, plowing, discing, direct drilling, and aerial seeding.

land use plan: A document that provides direction for future management of public lands and the related resources. A management framework plan is one example of a land use plan.

license: An authorization that permits the grazing of a specified number and kind of livestock on a designated area of BLM lands for a period of time.

litter: The uppermost layer of organic debris. It is composed of freshly fallen or slightly decomposed organic materials.

livestock grazing capacity: The number of animal unit months of forage available for livestock grazing on a sustained-yield basis on the public lands as determined through land use planning. It does not include competitve forage for big game.

loess: Medium and fine material, predominantly silt-sized particles, deposited by wind.

long term: A period of time including at least ten years, when the proposed grazing management has been implemented and resultant conditions have stabilized.

macroinvertebrates: Insects, annelids, mollusks, flatworms, roundworms, and crustaceans inhabiting the bottoms of lakes and streams. They provide a food source and may indicate aquatic habitat condition.

management framework plan (MFP): A document that provides a set of goals, objectives, and constraints for an area of public lands. It guides the plans for management of each resource.

mechanical weathering: Erosion due to changes in temperature and gravity, without the aid of water.

National Cooperative Soil Survey: A cooperative effort among various Federal, State, local, and private agencies and organizations to survey the soils of the United States. The lead agency in this effort is the Soil Conservation Service of the Department of Agriculture.

National Register: The National Register of Historic Places. It is a register of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture, maintained by the Secretary of the Interior.

observed apparent trend: A one-time observation (of a respresentative area of a vegetation type) that considers plant vigor, seedlings, surface litter, and soil movement, and compares the vegetation composition to the natural potential (climax community) of the area.

off-road vehicle (ORV): Any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other terrain.

overgrazing: Consumption of vegetation beyond the endurance of plants to survive.

palatability: Quality of being agreeable to taste; savory; desirable to eat.

parent material: A mineral or organic material, relatively unaffected by soil-forming processes, that resembles the material from which the soil is presumed to have formed.

pasture: A subdivision of a grazing allotment.

perennial plant: A plant that has a life cycle of three or more years.

perennial stream: Streams flowing throughout the year from source to mouth.

permeability: The quality that enables the soil to transmit air or water, measured in terms of inches per hour that water moves through the soil.

pH: An expression of acidity (hydrogen ion concentration), represented by by log (1/H+).

phenology: The study of natural phenomena that recur periodically, such as blossoming, and their relation to climate and changes in season.

physiological: Relating to the organic processes characteristic of a living organism.

physiological use limit: The level or intensity of grazing that can be allowed while maintaining enough cover to protect the soil and maintaining or improving the quantity and quality of desirable vegetation.

planning area: A geographic unit within a BLM District that includes related lands, resources, and use problems that are considered together for resource inventory, analysis, and planning.

plant canopy cover: The downward vertical projection of the aerial portion of shrubs and trees, usually expressed as a percent of the ground occupied.

plant density: The number of individual plants per unit of area; the relative closeness of individual plants to one another.

plant succession: The process of vegetation development whereby an area becomes successively occupied by different plant communities of higher ecological order.

plant vigor: The relative well-being and health of a plant as reflected by its ability to manufacture sufficient food for growth, reproduction, and maintenance.

potentially suitable areas: Range presently unsuitable for livestock grazing that could become suitable with the development of water, management facilities, management systems and practices, or vegetation treatments.

pre-Tertiary: In geologic time, the period prior to 64 million years ago.

public land: For this EIS, Federal land administered by the Bureau of Land Management.

range: An open area dominated by vegetation that is useful for grazing and browsing by animals.

rangeland: Land on which there is livestock grazing or which may be suitable for livestock grazing, sometimes used interchangeably with the word "range."

range condition: (See ecological condition.)

range improvement: A grazing management facility or land treatment intended to increase forage production, improve watershed and range condition, or facilitate management of an allotment or the livestock grazing on it.

range trend: The direction of change in ecological or range condition, usually measured in terms of upward, downward, and static.

residuum: Material resulting from the disintegration and decomposition of rocks in place.

rest: For this EIS, temporary suspension of grazing on a range area to allow plants to replenish their food reserves.

rest rotation: A grazing system of sequential grazing and resting of the range to provide for the production of livestock while maintaining or improving the vegetation and soil fertility. It includes at least one full growing season of continuous rest from grazing for each pasture in the system.

rill: A small steep-sided channel resulting from accelerated erosion. A rill is generally less than a few inches deep and wide.

riparian: Situated on or pertaining to the bank of a river, stream, body of water, or other wet area. Normally used to refer to the plants of all types that grow along streams, around springs, near other wet areas, or above subsurface waters.

rotation: Sequential movement of livestock from one pasture to another to allow regrowth of vegetation and maintenance of vegetative vigor.

runoff: That part of precipitation that does not immediately enter the soil or evaporate and ultimately reaches a stream channel. It occurs when the rate of snowmelt or rainfall exceeds the rate of infiltration into the soil.

season of use: The period of time when livestock graze on a range area.

seasonal grazing: Grazing occurring during a specified time each year over an entire allotment.

sedimentary rock: Rock made up of fragments or particles of various sizes deposited from suspension in water or air. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from silt and clay; and limestone, formed from soft masses of calcium carbonate.

sedimentation: The action of depositing mineral or organic matter in water.

sensitive species: Animals that the Idaho Department of Fish and Game and BLM have determined to be worthy of close scrutiny because of their susceptibility to extinction.

sheet erosion: The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall impact and runoff water.

short term: For this EIS, the period of approximately five years from 1981 to 1986 during which the proposed grazing management will be implemented.

slope: The inclination of the land surface from the horizontal. Percent slope is the vertical rise divided by the horizontal distance, multiplied by 100.

soil: The unconsolidated mineral material on the immediate surface of the earth that serves as a natural medium for the growth of land plants.

soil association: A group of defined and named soil units occurring together in characteristic patterns over a geographic region.

soil depth classes: Categories of soil thickness. "Very shallow" is 0-10 inches; "shallow" is 10-20 inches; "moderately deep" is 20-40 inches; "deep" is 40-60 inches; and "very deep" is 60+ inches.

soil phase: A subdivision of a soil series based on differences that affect management. Although slope, stoniness, surface texture or some other characteristic may be the basis for establishing a phase, they are considered too small to justify distinct soil series.

soil profile: A vertical section of the soil extending from the surface layer through all its underlying layers and into the parent material.

soil series: A group of soils formed from similar parent material and having soil layers that, except for the texture of the surface layer, are similar in all profile characteristics and in arrangement in the soil profile.

soil texture: The relative proportions of sand, silt, and clay particles in a mass of soil.

soil texture groups: Coarse textured (sands, loamy sands), moderately coarse textured (sandy loam, fine sandy loam), medium textured (very fine sandy loam, loam, silt loam, silt), and fine textured (sandy clay, silty clay, clay).

species composition: The proportions of different plant species within a vegetation community.

stocking rate: The degree to which a grazing unit is stocked with livestock, usually expressed in AUMs. It considers both the numbers of livestock and the amount of time they graze. Also referred to as "stocking level."

stones: Rock fragments 10 to 24 inches in diameter.

subsoil: The part of the soil below the surface layer, usually higher in clay content then either the surface layer or the underlying layers.

substratum: The part of the soil below the surface layer when a subsoil is not present, otherwise the part of the soil below the subsoil.

suitable areas: Range accessible to livestock that can be grazed on a sustained-yield basis under proper management without damage to the resources. For this EIS, it includes areas that produce more that 25 pounds of palatable forage per acre, are within four miles of water, and do not exceed 50 percent slope.

surface layer: The soil at or near the surface, generally five to fifteen inches thick.

Tertiary: A period of geologic time, approximately 3 to 64 million years ago.

threatened species: Plants and animals that could become endangered within the foreseeable future throughout all or a significant portion of their range as a result of minor changes in habitat or population levels.

treatment: In a livestock grazing system, one of the annually scheduled periods of grazing or resting applied to a particular unit of a grazed area.

trend: (See range trend.)

unit resource analysis (URA): A comprehensive display of physical resource data and an analysis of the current use, production, condition, and trend of the resources, their potentials, and opportunities for management within a planning unit.

usable production: That portion of total vegetation production that may be removed by wildlife and livestock without causing damage to the plants; used interchangeably with "usable forage." In this EIS it cannot be translated directly into AUMs without first taking into account forage composition (percent grasses, forbs, and shrubs) and dietary requirements of the grazing animals.

utilization: The portion of current year's forage production that is consumed or removed by grazing or browsing animals. Usually expressed as a percentage.

vegetation: All of the plants or plant life in an area, taken as a whole.

visual contrast: A noticeable difference in appearance caused by an activity, facility, or area, in comparison to the adjacent landscape.

visual resources: The land, water, vegetation, structures, and other features that are visible on all public lands.

visual resource class: One of five categories that specify management objectives for differing degrees of contrast from a landscape's existing character.

visual resource management (VRM) system: A manualized procedure to evaluate the quality and importance of visual resources based on scenic quality, visual sensitivity, and visual zone.

water-holding capacity: The capacity of soils to hold water available for use by most plants.

watershed: The region drained by a river, river system, or body of water.

watershed condition: The state of a drainage area or portion of a drainage area with respect to the vegetation and hydrologic qualities of the soils in the area.

water table: The upper limit of the soil or underlying rock material that is wholly saturated with water.

water yield: The total surface and subsurface water produced from an area after accounting for evaporation losses and inflows. It is calculated by subtracting consumptive use from precipitation or by subtracting inflows (surface + ground) from outflows (surface + ground).

wilderness: An area of undeveloped Federal land which has wilderness characteristics and which has been added to the National Wilderness Preservation System by an act of Congress.

wilderness characteristics: Qualities of a wilderness as defined in Section 2(c) of the Wilderness Act of 1964, which include (1) generally appearing to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) having outstanding opportunities for solitude or a primitive and unconfined type of recreation; and (3) having at least five thousand acres of land or being of sufficient size as to make practicable its preservation and use in an unimpaired condition.

Wilderness inventory: An evaluation of the public lands in the form of a written description and map showing those lands that meet the wilderness criteria as established under section 603(a) of FLPMA and section 2(c) of the Wilderness Act.

Wilderness Review Program: The term used to cover the entire process of wilderness inventory, study, and reporting for the wilderness

resource, culminating in recommendations submitted through the Secretary of the Interior and the President to Congress on the suitability of areas for inclusion in the National Wilderness Preservation System.

Wilderness Study Area (WSA): A roadless area or island that has been found to have wilderness characteristics as described in section 603 of FLPMA and section 2(c) of the Wilderness Act of 1964 (78 Stat. 891).

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